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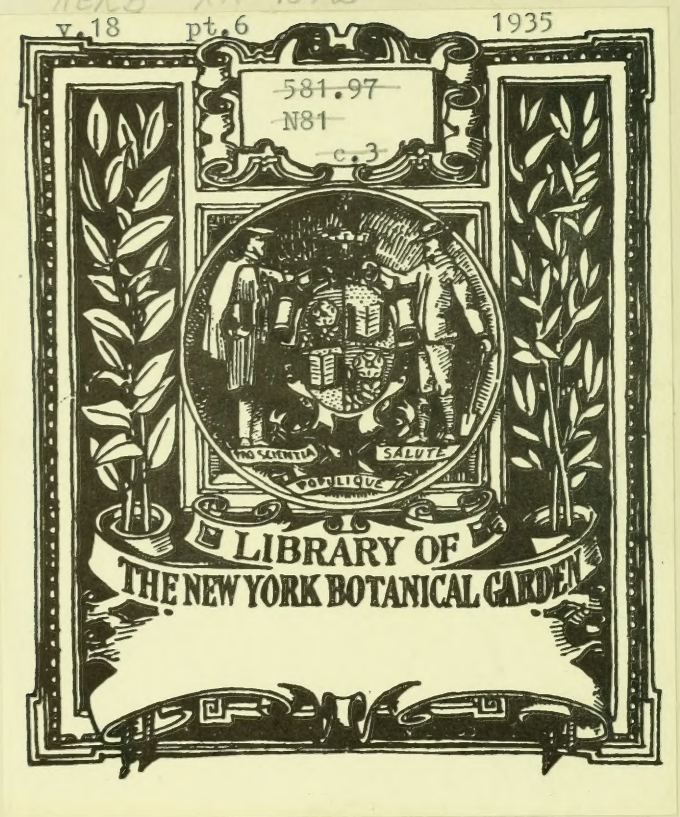

VOLUME 18 PART 6

NORTH AMERICAN FLORA

(POALES)

(CYPERACEAE)

CARICEAE (continuatio)

KENNETH KENT MACKENZIE

PUBLISHED BY

THE NEW YORK BOTANICAL GARDEN

OCTOBER 21, 1935

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blade short or nearly wanting; upper bracts reduced, bladeless or nearly so; scales appressed, ovate, obtuse to acuminate, thin, blackish, white-hyaline at apex, and with a very narrow whitish-hyaline margin and poorly developed slender lighter midvein, wider but noticeably shorter than the perigynia; perigynia narrowly lanceolate, 3.5–5 mm. long, 1 mm. wide below the middle, flattened-triangular, not inflated, purplish-black above, greenish-white or straw-colored below, membranaceous, glabrous but minutely puncticulate, two-edged and very obscurely few-nerved, toward base tapering and short-stipitate at base, the upper half very long-tapering and strongly ciliate-serrulate on the margins, the tip strongly white hyaline, obliquely cleft, becoming bidentulate or bidentate; achenes narrowly obovoid, 2 mm. long, 0.75 mm. wide, triangular with concave sides and sharp angles, filling body of perigynium, brownish, striolate, substipitate, strongly apiculate, jointed with the straight slender style; stigmas 3, brownish, slender.

TYPE LOCALITY: Melville Island, North America.
DISTRIBUTION: Greenland to Northern Alaska, and southward very locally on the highest mountains to Colorado; also in arctic Eurasia. (Specimens examined from Greenland, Ellesmereland, Ungava, Quebec, Keewatin, northern Alaska, Alberta, central Colorado.)
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 731;* ed. 2. *f. 1025;* Kunze, Suppl. Riedgr. *pl. 14, f. d;* Ostenf. Fl. Arct. 89. *f. 67;* Fl. Dan. *pl. 2373;* Boott, Ill. Carex 77. *pl. 212.*
NOTE: This species is closely related to the widely distributed Eurasian species *C. fuliginosa* Schkuhr, Riedgr. **1**: 91. *pl. CC, f. 47C.* 1801 (Reichenb. Ic. Fl. Germ. **8**: *pl. 249, f. 614;* Anderss, Cyp. Scand, **1**: 26. *pl. 7, f. 90;* Hegi, Ill. Fl. Mittel-Eur. **2**: 105. *f. 240;* Hallier, Deuts. Fl. *pl. 439;* Kunze, Suppl. Riedgr. *pl. 14,* excluding *f. d*). That species has more leafy culms, some of the leaves nearly equal the culm, the lateral spikes are rounded at base, and the perigynia are 5–6 mm. long.

364. **Carex atrofusca** Schkuhr, Riedgr. 106. *pl. Y, f. 82.* 1801.

"*Carex limosa* L." Scop. Fl. Carn. ed. 2. **2**: 222. 1772. (From central Europe.)
Carex ustulata Wahl. Sv. Vet.-Akad. Nya Handl. **24**: 156. 1803. (Type from Scandinavia.)
Trasus ustulatus S. F. Gray, Nat. Arr. Brit. Pl. **2**: 66. 1821. (Based on *Carex ustulata* Wahl.)
Carex ustulata a *typica* Regel, Acta Hort. Petrop. **7**: 571. 1881. (Based on *C. ustulata* Wahl.)
Carex atrofusca f. *flavescens* Kükenth. in Engler, Pflanzenreich 4^{20}: 554. 1909. (Type from Norway.)

Loosely cespitose and short-stoloniferous, the stolons slender, ascending, light brownish, the clumps small, the culms few together, 1–3 dm. high, strict, erect, nodding, much exceeding the leaves, phyllopodic, obtusely triangular, smooth or nearly so, brownish-tinged and slightly fibrillose at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 5–10 to a fertile culm, the lower clustered, the upper somewhat scattered, the blades flat, thickish, light-green, short, usually 2–9 cm. long (rarely more), 2–4 mm. wide, roughened at the attenuate apex, the sheaths tight, more or less yellowish-brown-tinged ventrally, the ligule short; terminal spike staminate or gynaecandrous, slender-peduncled, 8–15 mm. long, 3–4.5 mm. wide, the scales oblong-obovate, acute to obtuse, black with narrow lighter center and white-hyaline margins; pistillate spikes 2 or 3, approximate or little separate, drooping, on slender, smooth peduncles 1–2 times their own length, the lowest peduncle or all with an empty scale, the spikes ovoid or short-oblong, round-truncate at base, 8–18 mm. long, 7–9 mm. wide, densely flowered, containing 15–30 ascending perigynia in several rows; lowest bract long-sheathing, the sheath 4–12 mm. long, usually strongly purplish-tinged, its blade short or rudimentary; upper bracts much reduced; scales appressed, oblong-ovate, acute to obtusish, thin, black with narrow lighter midrib and scarcely developed hyaline margins, somewhat narrower and shorter than perigynia; perigynia ovate or oblong-ovate 4–5 mm. long, 1.75–2 mm. wide, much flattened, triangular, not at all inflated, usually black or at base straw-colored, the edges greenish, thin, membranaceous, slightly granular, short-ciliate-serrulate above, 2-ribbed, otherwise nerveless or nearly so, round-tapering at base, short-stipitate, round-tapering at apex, abruptly minutely beaked, the beak 0.5 mm. long, bidentate, slightly yellowish-hyaline; achenes obovoid, 1.75 mm. long, 0.75 mm. wide, narrower and shorter than perigynia, triangular with concave sides, brownish, granular, strongly slenderly stipitate, abruptly strongly apiculate, obscurely jointed with the slender, straight style; stigmas 3, slender, brownish, rather short.

TYPE LOCALITY: "Habitat in Alpibus Vochein, M. Terglau, Kerma."
DISTRIBUTION: Meadows in calcareous regions, Greenland and Labrador to northern Alaska;

widely distributed in arctic-alpine localities in Eurasia. (Specimens examined from Ellesmereland, Ungava, Keewatin, Alaska.)

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. ed. 2. *f. 1024;* Schkuhr, Riedgr. *pl. Y, f. 82;* Fl. Dan. *pl. 1590;* Boott, Ill. Carex 70. *pl. 193, f. 3;* Jour. Russe Bot. **1911**: 150. *f. 124;* Sturm, Deuts. Fl. **53**: *pl. 5;* Ostenf. Fl. Arct. 90. *f. 68;* Reichenb. Ic. Fl. Germ. **8**: *pl. 250, f. 615;* Engl. Bot. *pl. 2404;* ed. 2. *pl. 1663;* Coste, Fl. Fr. *f. 3881;* Hegi, Ill. Fl. Mittel-Eur. **2**: 106. *f. 242;* Lindm. Bild. Nord. Fl. *pl. 435A;* Hallier, Deuts. Fl. *pl. 439;* Sv. Bot. *pl. 717.*

365. **Carex Lemmonii** W. Boott, Bot. Gaz. **9**: 93. 1884.

"Carex fulva var. *Hornschuchiana* Boott" W. Boott, in S. Wats. Bot. Calif. **2**: 250. 1880.
"Carex Cherokeensis Schw." W. Boott, in S. Wats. Bot. Calif. **2**: 248. 1880.
Carex albida L. H. Bailey, Mem. Torrey Club **1**: 9. 1889.
Carex luzulaefolia f. *albida* Kükenth. in Engler, Pflanzenreich 4^{20}: 558. 1909.
"Carex serratodens W. Boott" Kükenth. in Engler, Pflanzenreich 4^{20}: 666, in part. 1909.
Carex Abramsii Mackenzie, Bull. Torrey Club **36**: 482. 1909. (Type from southern California.)

Loosely or densely cespitose, stoloniferous, the rootstock short, the stolons very short, ascending, the culms slender, erect, 2–8 dm. high, exceeding the leaves, phyllopodic, obtusely triangular, smooth or nearly so on the angles, fibrillose and light-brownish-tinged at base, the dried-up leaves of the previous year conspicuous; sterile shoots more or less elongate, conspicuous; leaves with well-developed blades 4–8 to a fertile culm, the lower clustered, the upper widely separate, the blades erect, thin, deep-green, flat, 5–25 cm. long, 1.5–4 mm. wide, roughened at apex, the midvein conspicuous below and the two mid-lateral veins above, the sheaths tight, truncate at mouth, the ligule short; terminal spike staminate, more or less strongly peduncled to nearly sessile, linear, 6–25 mm. long, 2.5–4 mm. wide, strongly overtopping the uppermost pistillate spike; scales oblong-obovate, obtuse, reddish-brown with whitish-hyaline margins and lighter center; pistillate spikes 2–4, the upper approximate, the lower widely separate, erect, the upper not exsert-peduncled, the lower strongly exsert-peduncled, narrowly oblong, 0.5–2 cm. long, 4–7 mm. wide, occasionally staminate at apex, the peduncles slender, rough, closely flowered, the perigynia 15–30, spreading-ascending in several rows; bracts leaflet-like, the lower sheaths 1–5 cm. long, slightly tubular, green, concave at mouth, the blades erect, longer than the sheaths but much shorter than the culms; scales broadly ovate, acute to obtusish, glabrous, reddish-brown with lighter 3-nerved center and broad white-hyaline margins, the midvein not prominent at apex, slightly narrower and shorter than the perigynia; perigynia narrowly ovoid, 3.5–4 mm. long, 1.5–1.75 mm. wide, triangular, not inflated, light-green or blackish-tinged above, membranaceous, puncticulate, 2-ribbed and finely nerved, round-tapering at base and short-stipitate, tapering or abruptly narrowed into a hyaline-tipped, more or less serrulate, obliquely cleft, bidentulate beak one third the length of the whole, the teeth very short (0.25 mm. long), spreading or erect; achenes obovoid, 1.75 mm. long, 1 mm. wide, triangular with concave sides and sharp angles, closely enveloped, brown, short-stipitate, slenderly apiculate, jointed with the straight slender style; stigmas 3, reddish, slender, short; anthers 1.75 mm. long.

TYPE LOCALITY: Sierra Nevada, California (*Lemmon*).

DISTRIBUTION: Confined to the Sierra Nevada Mountains of California, from Tehama to Tulare counties, and the San Bernardino and San Jacinto mountains of southern California. (Specimens examined showing range as given.)

ILLUSTRATION: Abrams, Ill. Fl. Pacif. St. *f. 787.*

NOTE: *C. albida* L. H. Bailey is based on very young and poor material, and apparently is best placed under this species.

366. **Carex ablata** L. H. Bailey, Bot. Gaz. **13**: 82. 1888.

Carex albata (sic) L. H. Bailey, Macoun, Cat. Can. Pl. **4**: 139. 1888. (Misprint for *C. ablata* L. H. Bailey.)
"Carex frigida All." Olney, in S. Wats. Bot. King's Expl. 371. 1871.
Carex luzulaefolia var. *ablata* Kükenth. in Engler, Pflanzenreich 4^{20}: 558. 1909. (Based on *C. ablata* L. H. Bailey.)
Carex owyheensis A. Nelson, Bot. Gaz. **53**: 219. 1912. (Type from Owyhee Mountains, Idaho.)
"Carex luzulina Olney" Mackenzie, in Rydb. Fl. Rocky Mts. 134, in part. 1917.
"Carex Lemmonii W. Boott" Holm, Am. Jour. Sci. IV. **48**: 22, in large part (including *f. 9–12*). 1919.

Densely cespitose, the rootstock short, the clumps medium-sized, the culms slender, erect, 2.5–6 dm. high, much exceeding the leaves, phyllopodic, obtusely triangular, smooth or

nearly so, fibrillose and light-brownish-tinged at base, the dried-up leaves of the previous year conspicuous; sterile shoots short; leaves with well-developed blades 4–9 to a fertile culm, the lower clustered, the upper scattered, the upper blades the larger, the blades flat, light-green, thin but firm, spreading to erect-ascending, acuminate or acute, 5–20 cm. long, 3–4.5 mm. wide, strongly roughened toward apex, the sheaths tight, truncate at mouth, the ligule as long as wide; terminal spike staminate or often with a few perigynia, sessile or slightly peduncled, linear, 8–20 mm. long, 2.5–4 mm. wide, little overtopping the uppermost pistillate spike, the scales oblong-obovate, obtuse, subciliate, reddish-brown to brownish-black, with lighter roughish center and hyaline margins; pistillate spikes 3–6, occasionally staminate at apex, erect, the upper and the staminate closely aggregated, the lowest 1 or 2 usually widely separated, the upper sessile or short-exsert-peduncled, the lower on rough peduncles exserted 1–4 times the length of the spikes, the spikes linear-oblong or narrowly oblong, 8–30 mm. long, 4–7 mm. wide, closely 15–30-flowered, the perigynia ascending-spreading in several rows, or sometimes attenuate or slightly compound at base; bracts leaflet-like, long-sheathing, the sheaths 1–4 cm. long, slightly tubular, the blades short or rudimentary, much exceeded by culms; scales ovate, obtusish, subciliate, purplish-black with lighter 3-nerved center and hyaline margins, the midvein roughish above, not extending to the apex, as wide as but strongly exceeded by perigynia; perigynia lanceolate, 3.5–5 mm. long, 1.25 mm. wide, flattened-triangular, not inflated, glabrous, slightly ciliate-serrulate, membranaceous, puncticulate, greenish or straw-colored, usually strongly purplish-black-tinged, 2-ribbed and finely nerved, rounded at base and short-stipitate, tapering at apex into the hardly differentiated bidentulate beak about 1 mm. long, dark-purplish at tip; achenes obovoid or oblong-obovoid, 1.75 mm. long, 1 mm. wide, sharply triangular with concave sides, closely enveloped, brownish, sessile, apiculate, jointed with the straight, slender style; stigmas 3, slender, short, dark-reddish; anthers 1.75 mm. long.

TYPE LOCALITY: A specimen collected by Macoun on Mt. Mark, Vancouver Island, is taken as the type.

DISTRIBUTION: Mountain bogs and meadows, Montana and northwestern Wyoming to British Columbia, and southward to Utah and California. (Specimens examined from northwestern Wyoming, Idaho, British Columbia, including Vancouver Island, Washington, Oregon, Utah, northern California.)

ILLUSTRATIONS: Abrams, Ill. Fl. Pacif. St. *f. 789;* Am. Jour. Sci. IV. **48**: 25. *f. 9–12.*

367. **Carex luzulina** Olney, Proc. Am. Acad. **7**: 395. 1868.

Densely cespitose and short-stoloniferous, the rootstocks short, slender, the stolons ascending, the clumps medium-sized, the culms 1.5–9 dm. high, erect, slender, much exceeding the leaves, phyllopodic, obtusely triangular, smooth or nearly so, fibrillose and light-brownish-tinged at base; sterile shoots conspicuous, elongate; leaves with well-developed blades 6–12 to a fertile culm, clustered near the base, the blades flat, thickish, stiff, light-green, 5–35 cm. long, 3–8 mm. wide, long-attenuate to acute, roughened toward the apex, the sheaths thin ventrally, convex at mouth, the ligule narrow, as long as wide; terminal spike staminate or often with a few perigynia, erect, sessile or nearly so, linear, 10–15 mm. long, 4–5 mm. wide, little exceeding the uppermost pistillate spike, the scales obovate, very obtuse, subciliate, reddish-brown with broad lighter center, rough above, and with hyaline margins; pistillate spikes 2–4, the lowest 1–4 cm. (or rarely even 7 cm.) distant, erect, little to strongly exsert-peduncled, the peduncles slender and roughish, the upper closely approximate to the staminate spike, erect, slightly or not at all exsert-peduncled, the spikes oblong, 7–20 mm. long, 6–9 mm. wide, closely flowered, containing 20–35 spreading-ascending perigynia in several rows; bracts long-sheathing, the blades leaflet-like, much shorter than the culms, the sheaths tubular, scarcely enlarged upwards; scales ovate, obtuse or acutish, subciliate, reddish-brown with broad lighter center and slightly hyaline margins, the midvein extending or nearly extending to the roughish apex, nearly as wide as but somewhat shorter than perigynia; perigynia lanceolate, 4–5 mm. long, 1.5–1.75 mm. wide, flattened-triangular, not inflated, glabrous, ciliate-serrulate on margins, membranaceous, puncticulate, light-green or yellowish-green, purplish-black-tinged, 2-ribbed and obscurely few-nerved, round-tapering at base and sessile, tapering

at apex into the dark-purplish-tinged, bidentulate beak 0.5–0.75 mm. long; achenes obovoid, 1.5 mm. long, 1 mm. wide, sharply triangular with concave sides, closely enveloped, brownish, short-stipitate, apiculate, jointed with the straight, slender style; stigmas 3, slender, reddish-brown, short.

TYPE LOCALITY: Mendocino City, California (*Bolander 4740*).
DISTRIBUTION: Mountain meadows and bogs, in the coast ranges of northwestern California and southwestern Oregon. (Specimens examined from range as given.)
ILLUSTRATION: Abrams, Ill. Fl. Pacif. St. *f. 788*.

368. **Carex luzulaefolia** W. Boott, in S. Wats. Bot. Calif. 2: 250. 1880.

Carex luzulaefolia var. *strobilantha* Holm, Am. Jour. Sci. IV. **20**: 305, 307. *f. 18*. 1905. (Type from Donner Lake, California.)
Carex pseudo-japonica C. B. Clarke, Kew Bull. Add. Ser. **8**: 81. 1908. (Type from Donner Lake, California.)

Densely cespitose, the rootstocks short and thick, the clumps medium-sized, the culms 4–10 dm. high, erect, rather stout, much exceeding the short leaves, phyllopodic, obtusely triangular, smooth or nearly so, fibrillose and dark-brown at base, the dried-up leaves of the previous year conspicuous; sterile shoots little elongate, conspicuous; leaves with well-developed blades 7–15 to a fertile culm, the upper 2 or 3 very widely separate from one another, the rest clustered at base, the upper sheath 4–9 cm. long, the blades usually widely spreading, flat, deep-green and very leathery, thick, usually 8–15 cm. long, 5–15 mm. wide, strongly striate, very short-tapering, roughened at apex, the sheaths thin ventrally, truncate at mouth, the ligule very short; terminal spike staminate or occasionally developing a very few perigynia, sessile or peduncled, 1–2 cm. long, 3–6 mm. wide, the scales oblong-obovate, very obtuse or mucronate, brownish or purplish-black with lighter center and narrow hyaline margins; pistillate spikes 3–6, erect, the upper 1–3 approximate and exsert-peduncled, the others usually strongly separate and long-exsert-peduncled, the peduncles smooth, the spikes oblong-cylindric, 12–25 mm. long, usually 6–8 mm. wide, round-tapering at base, closely flowered, containing 15–50 ascending perigynia in several to many rows; bracts long-sheathing, the blades rudimentary, much shorter than inflorescence, the sheaths strongly enlarged upward; scales ovate, smooth, shining, acute to cuspidate, purplish-black with conspicuous lighter midrib and narrow hyaline margins, the midvein sharply defined to tip, slightly rough, as wide as but shorter than the perigynia; perigynia ovate, 4.5–5 mm. long, 1.75–2.25 mm. wide, much flattened, not inflated, glabrous, membranaceous, puncticulate, green- and purplish-black-mottled, obscurely nerved, rounded at base, short-stipitate, abruptly contracted into a smooth, purplish-black-tipped bidentate beak 1.5–2 mm. long; achenes obovoid, 1.75 mm. long, 1 mm. wide, about half the width of the perigynia, sharply triangular with concave sides, loosely enveloped, yellowish-brown, short-stipitate, apiculate, obscurely jointed with the straight slender style; stigmas 3, light-brownish, slender, short; anthers 3.5–4 mm. long.

TYPE LOCALITY: Sierra Nevada, California, above Ebbetts Pass, near lake (*Brewer 2019*). (See Erythea **8**: 66. for discussion as to type.)
DISTRIBUTION: In the Sierra Nevada mountains of California, from Shasta County south to Tulare County. A handsome species. (Specimens examined showing range as given.)
ILLUSTRATIONS: Am. Jour. Sci. IV. **20**: 307. *f. 18;* Erythea **8**: 65. *f. 34;* Jepson, Fl. Calif. **1**: 232. *f. 34, a–c;* Abrams, Ill. Fl. Pacif. St. *f. 790;* Jepson, Man. Fl. Pl. Calif. *f. 192*.

369. **Carex fissuricola** Mackenzie, Muhlenbergia 5: 53. 1909.

Carex luzulaefolia W. Boott, in S. Wats. Bot. Calif. **2**: 250. 1880. (In part, not as to type.)
Carex ablata var. *luzuliformis* L. H. Bailey, Bot. Gaz. **25**: 272. 1898. (Type from Sierra Nevada Mountains, California.)
Carex luzulaefolia var. *ablata* f. *luzulaeformis* Kükenth. in Engler, Pflanzenreich **4**[20]: 558. 1909. (Based on *C. ablata* var. *luzuliformis* L. H. Bailey.)

Densely cespitose, the rootstocks very short, the clumps medium-sized, the culms 5–8 dm. high, erect, much exceeding the leaves, phyllopodic, obtusely triangular, slightly roughened above, dark-brown and fibrillose at base, the dried-up leaves of the previous year con-

spicuous; sterile shoots little elongate, conspicuous; leaves with well-developed blades 6–10 to a fertile culm, the upper 2 or 3 very widely separated from one another, the rest clustered at base, the upper sheath 6–9 cm. long, the blades light-green, thickish but not leathery, flat, 7–25 cm. long, 3–8 mm. wide, very short-tapering, strongly striate, roughened at apex, the sheaths thin ventrally, truncate at mouth, the ligule very short; terminal spike staminate or often developing a few perigynia, sessile or short-peduncled, obclavate, 8–15 mm. long, 3–5 mm. wide, the scales oblong-oblanceolate, abruptly acute or mucronate from the projecting midvein, brownish-black with light-colored center and roughish, scarcely hyaline, subciliate margins; pistillate spikes 4 or 5, the upper 1–3 sessile or short-peduncled, and with the staminate spike closely aggregated, the others more or less strongly separated and short- to long-exsert-peduncled, the peduncles rough, the spikes oblong, 8–30 mm. long, 6–9 mm. wide, rounded or somewhat attenuate at base, closely flowered, containing 15–40 spreading-ascending perigynia in several to many rows; bracts long-sheathing, the sheaths tubular, green, scarcely enlarged upward, the blades short or rudimentary, much shorter than the culms; scales narrowly ovate, acute, cuspidate, or short-awned, brownish-black with lighter hispidulous center, the margins narrowly hyaline, the midvein conspicuous to the tip, narrower and shorter than the perigynia; perigynia ovate, 4.5–5 mm. long, 1.75–2 mm. wide, much flattened, not inflated, very sparsely hairy at least when young, ciliate-serrulate on the margins above, membranaceous, puncticulate, green- and purplish-black-mottled, obscurely nerved, rounded at base, short-stipitate, abruptly contracted into a bidentate beak one fourth to one third the length of the whole; achenes obovoid, 1.75 mm. long, 1 mm. wide, about half the width of the perigynia, sharply triangular with concave sides, loosely enveloped, yellowish-brown, substipitate, apiculate, obscurely jointed with the straight slender style; stigmas 3, slender, light-reddish-brown; anthers 3 mm. long.

TYPE LOCALITY: Cañon at the head of south fork of Humboldt River, Elk County, Nevada (*Heller 2401*).

DISTRIBUTION: Mountain meadows, Wahsatch Mountains, Utah, western Nevada, and the Sierra Nevada of California from Tulare County north to El Dorado County. (Specimens examined from Utah, Nevada, California.)

ILLUSTRATION: Abrams, Ill. Fl. Pacif. St. *f. 791.*

NOTE: *Carex herbariorum* L. H. Bailey (Bot. Gaz. **17:** 150. 1892), erroneously guessed to have been collected in the western United States, is *C. Morrowii* Boott (*"C. japonica"* Hort.), a Japanese species sometimes in cultivation.

370. **Carex misandroides** Fernald, Rhodora **17:** 158. 1915.

Loosely cespitose, the rootstocks slender, elongate, descending obliquely, the culms mostly 1–3 dm. high, erect, slender, shorter than or exceeding leaves, phyllopodic, obtusely triangular, smooth or slightly roughened above, chestnut-brown-tinged at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 4–8 to a fertile culm, clustered above the base, not septate-nodulose, the blades yellowish-green, stiff-involute, 5–10 cm. long, 1–1.5 mm. wide, long-attenuate, little roughened, the tip triangular, soon drying up, the sheaths (at least the lower) cinnamon-brown-tinged ventrally, soon breaking, truncate at mouth, strongly striate dorsally, the ligule very short; staminate spikes 1 or 2, sessile or short- or slender-peduncled, 1–1.5 cm. long, the scales obovate, obtuse, purplish-black with hyaline apex; pistillate spikes 1–4, sometimes androgynous, the uppermost sessile or short-peduncled, the others on long roughish capillary peduncles, the lower 1 or 2 on arcuate spreading peduncles 0.2–3.5 cm. long, the lowest frequently basal or nearly so, the spikes ovoid or oblong-ovoid, 0.5–1.8 cm. long, 6 mm. wide, closely flowered, except for the 2 or 3 basal flowers, the perigynia 15–30, appressed-ascending in several to many rows; bracts rather short-sheathing, tight, strongly purplish-tinged, all except the lowest bladeless or short-bladed; scales oblong-ovate, thin, closely appressed, minutely roughened, shining, about the width of but exceeded by the perigynia, obtusish to short-rough-awned, purplish-black with narrow white-hyaline apex and yellowish midvein conspicuous to tip; perigynia oblong-lanceolate, 5–6 mm. long, 1.75 mm. wide, strongly flattened, not inflated, minutely asperulous on nerves, ciliate on margins, thin, membranaceous, shining, straw-colored below, purplish-black above, obscurely and slenderly several-nerved, tapering at base and short-stipitate, tapering at apex, scarcely

beaked, the apex white-hyaline, bidentulate, obliquely cut; achenes lenticular, oblong-obovoid, 1.75 mm. long, 1.25 mm. wide, much narrower and shorter than perigynia, yellowish-brown, strongly stipitate, short-apiculate, jointed with the straight, slender style; stigmas 2, slender, blackish.

TYPE LOCALITY: Table Mountain, Port à Port Bay, Newfoundland (*Fernald & St. John 10801*).
DISTRIBUTION: Mossy knolls in dry limestone barrens, Newfoundland; Gaspé, Quebec. (Specimens examined from Newfoundland and Quebec.)

53. **Virescentes** Kunth, Enum. Pl. **2:** 429. 1837; Tuckerm. Enum. Caric. 14. 1843; Carey, in A. Gray, Man. 553. 1848; L. H. Bailey, Proc. Am. Acad. **22:** 100, mostly. 1886. PENDULINAE Fries, Fl. Scan. 188, in small part. 1835. MONTANAE Fries, Fl. Scan. 189, in small part. 1835. PALLESCENTES Fries, Summa Veg. Scand. 71. 1845; L. H. Bailey, Proc. Am. Acad. **22:** 112. 1886. GRANULARES O. F. Lang, Linnaea **24:** 582, in part. 1851. TOMENTOSAE O. F. Lang, Linnaea **24:** 586, in part. 1851. GLOBULARES Meinsh. Acta Hort. Petrop. **18:** 393, in part. 1901. CARICIGYNE (3) VIRESCENTES C. B. Clarke, Kew Bull. Add. Ser. **8:** 147. 1908. PACHYSTYLAE Kükenth. in Engler, Pflanzenreich 4^{20}: 428. 1909. Species are referred by Holm (Am. Jour. Sci. IV. **16:** 458. 1903) to the CENCHROCARPAE Holm and (*op. cit.* 459) to the TRACHYCHLAENAE Drejer.

Culms aphyllopodic, tufted, leafy toward the base; leaves with at least the sheaths pubescent; terminal spike gynaecandrous or staminate; lateral spikes pistillate, closely many-flowered in several rows; bracts sheathless or nearly so, at least the lower leaf-like; scales obtuse to cuspidate or awned; perigynia green, round-triangular in cross-section, membranaceous to subcoriaceous, from little to rather strongly inflated, several-nerved or ribbed, glabrous or hairy, rounded or pointed or tapering at the apex, the orifice entire or nearly so; achenes triangular, apiculate, the apiculation often bent, jointed with the short thick style; stigmas 3.

Dry-ground species of the temperate parts of North America and Eurasia. Two species occur in the mountains of northern South America. The group is not otherwise represented in the tropics or in Australasia.

Terminal spike staminate, linear; ligule longer than wide.
  Perigynia lightly nerved, sessile, beakless; scales ovate. 371. *C. pallescens.*
  Perigynia strongly many-ribbed, broadly short-stipitate, abruptly beaked, the beak short, cylindric; scales ovate-orbicular. 372. *C. Torreyi.*
Terminal spike gynaecandrous, clavate at base; perigynia beakless or short-pointed or tapering at apex.
  Perigynia densely pubescent, green; lower spikes more or less strongly distant and peduncled; ligule conspicuously longer than wide.
    Lowest bract setaceous, 0.5 mm. wide, twice exceeding inflorescence; pistillate spikes oblong-cylindric to oblong-globose; perigynia broadly obovoid; leaves usually exceeding culms; achenes bent-apiculate; style as long as apiculation. 373. *C. Swanii.*
    Lowest bract leaflet-like, 0.5–3 mm. wide, somewhat exceeding inflorescence; pistillate spikes linear-cylindric; perigynia oblong-elliptic or obovoid; culms exceeding leaves; achenes straight-apiculate; style much longer than apiculation. 374. *C. virescens.*
  Perigynia glabrous or at most asperulous (or with very sparse pubescence when young); spikes contiguous or approximate or the lowest slightly remote, sessile or nearly so; ligule shorter than or about as long as wide.
    Rootstocks woody, elongate; culms becoming decumbent; lowest bract shorter than inflorescence; perigynia elliptic-ovoid, tapering at apex, strongly several-ribbed dorsally. 375. *C. boliviensis.*
    Culms cespitose, erect; perigynia varying from strongly ribbed to nerveless ventrally, not tapering at apex.
      Perigynia more or less flattened ventrally, rounded at apex, nerved; achenes with a somewhat bent short-apiculate tip; style very short.
        Leaf-blades glabrate or nearly so, stiff, with revolute margins; perigynia somewhat flattened, very obscurely nerved or nerveless ventrally, more or less strongly nerved dorsally especially towards apex. 376. *C. complanata.*
        Leaf-blades strongly short-pubescent, not stiff, flat; perigynia markedly flattened ventrally, strongly nerved dorsally, and less so ventrally. 377. *C. hirsutella.*

Perigynia turgid, nearly round in cross-section, short-pointed at apex, coarsely nerved or ribbed; achenes with a very abruptly bent apiculate tip or style.

Perigynia 2 mm. long, brownish-green; pistillate scales not pilose, obtuse or short-cuspidate; leaf-blades glabrate, with traces of pubescence. 378. *C. caroliniana.*

Perigynia 2.5–3.5 mm. long, olive-green; pistillate scales sparingly pilose, cuspidate or awned; leaf-blades soft-pubescent, especially below. 379. *C. Bushii.*

371. Carex pallescens L. Sp. Pl. 977. 1753.

Carex pallida Salisb. Prodr. 29. 1796. (Type from England.)
Trasus pallescens S. F. Gray, Nat. Arr. Brit. Pl. **2**: 89. 1821. (Based on *Carex pallescens* L.)
Carex undulata Kunze, Suppl. Riedgr. 23. *pl. 4, f. 2.* 1840. (Type from Lapland.)
Carex pallescens var. *cylindrica* Peterm. Anal. Pfl. 506. 1846. (Type from Germany.)
Carex pallescens var. *undulata* Reichenb. Ic. Fl. Germ. **8**: 22. *pl. 251, f. 618.* 1846. (Based on *C. undulata* Kunze.)
Carex pallescens var. *undulata* Carey, in A. Gray, Man. 552. 1848. (Based on *C. undulata* Kunze.)
Carex pallescens var. *glaberrima* K. Koch, Linnaea **21**: 612. 1848. (Type from southwestern Asia.)
Carex pallescens var. *alpestris* Schur, Enum. Pl. Transsilv. 714. 1866. (Type from Transsylvania.)
Carex leucantha Schur, Enum. Pl. Transsilv. 714. 1866. (Type from Transsylvania.) Not *C. leucantha* Arn. 1846.
Carex pallescens var. *leucostachya* Schur, Enum. Pl. Transsilv. 714. 1866. (As synonym of *C. leucantha* Schur.)
Carex punctata × *pallescens* Brügger, Jahresb. Nat. Ges. Graubünd. **23–24**: 120. 1881. (Type from Germany.)
Carex sylvatica × *pallescens* Brügger, Jahresb. Nat. Ges. Graubünd. **23–24**: 120. 1881. (Type from Switzerland.)
Carex pallescens var. *typica* G. Beck, Fl. Nieder-Oesterr. 140. 1890. (Based on *C. pallescens* L.)
Carex pallescens var. *subglabra* G. Beck, Fl. Nieder-Oesterr. 140. 1890. (Type from Austria.)
Carex microstoma Franch. Bull. Soc. Philom. VIII. **7**: 48. 1895. (Type from China.)
Carex tymphaea Formánek, Verh. Nat. Ver. Brünn **34**: 279. 1896. (Type from central Europe.)
Carex pallescens var. *brevibracteata* Neuman, Sv. Fl. 702. 1901. (Type from Scandinavia.)
Carex pallescens var. *pygmaea* Lackowitz; Asch. & Retzd. Verh. Bot. Ver. Prov. Brand. **44**: 165. 1902. (Name only; type from Berlin, Germany.)
Carex pallescens f. *elatior* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 145. 1903. (Type from central Europe.)
Carex pallescens var. *leucantha* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 146. 1903. (Based on *C. leucantha* Schur.)
Carex pallescens f. *pygmaea* "Lackowitz" Kükenth. in Engler, Pflanzenreich 4^{20}: 433. 1909. (Based on *C. pallescens* var. *pygmaea* Lackowitz.)
Carex pallescens f. *alpestris* "Schur" Kükenth. in Engler, Pflanzenreich 4^{20}: 433. 1909. (Based on *C. pallescens* var. *alpestris* Schur.)
Carex pallescens f. *brevibracteata* "Neuman" Kükenth. in Engler, Pflanzenreich 4^{20}: 433. 1909. (Based on *C. alpestris* var. *brevibracteata* Neuman.)
Carex pallescens f. *cylindrica* "Petermann" Kükenth. in Engler, Pflanzenreich 4^{20}: 433. 1909. (Based on *C. pallescens* var. *cylindrica* Peterm.)
Carex pallescens f. *glaberrima* "K. Koch" Kükenth. in Engler, Pflanzenreich 4^{20}: 433. 1909. (Based on *C. pallescens* var. *glaberrima* K. Koch.)
Carex pallescens var. *subsilvatica* Kükenth. in Engler, Pflanzenreich 4^{20}: 433. 1909. (Type from Switzerland.)
Carex pallescens var. *luxuriosa* Kükenth. in Engler, Pflanzenreich 4^{20}: 433. 1909. (Type from Germany.)

Cespitose but not very densely, the rootstock short, the stolons very short-ascending, the culms slender, not stiff, erect, 2–6 dm. high, in medium-sized clumps, rather sharply triangular, with slightly concave sides, short-pubescent, rough above, from shorter to longer than the leaves, aphyllopodic, brownish-red-tinged at base; leaves with well-developed blades 2 or 3 to a culm, on lower third, but not bunched, not septate-nodulose, the blades more or less strongly soft-pubescent below, erect-ascending, 8–35 cm. long, 2–3 mm. wide, deep-green, flat with slightly revolute margins, not stiff, the sheaths tight, more or less strongly soft-pubescent, cinnamon-brown-tinged, deeply concave at mouth, the ligule prominent, longer than wide; uppermost spike staminate, erect, short-peduncled, linear, subclavate, 1–2.5 mm. wide, 5–30 mm. long, the scales oblong-obovate, acute or mucronate, greenish or yellowish-brown; pistillate spikes 2 or 3, short-oblong to oblong-cylindric, 5–20 mm. long, 5–7 mm. wide, closely 15–40-flowered, in several to many rows, erect to spreading, approximate or the lowest somewhat separate, on capillary smooth peduncles varying from very short to 15 mm. long, lowermost bract leaf-like, well-developed and much exceeding the inflorescence, not sheathing or but little so, sometimes undulate at base; uppermost bracts much smaller; scales

ovate, the lower cuspidate or acuminate, the upper acute, about as wide as and from a little shorter to a little longer than the perigynia, yellowish-brown or greenish-white with 3-nerved green center; perigynia ascending or somewhat spreading, broadly elliptic, 2.5–3 mm. long, 1.5 mm. wide, orbicular or obscurely triangular in cross-section, membranaceous, greenish or yellowish-green, sessile, minutely puncticulate, rounded at base, abruptly rounded and beakless at apex, glabrous, finely lightly many-nerved; achenes obovoid, loosely enveloped, triangular with concave sides, 1.75–2 mm. long, 1–1.25 mm. wide, substipitate, short-apiculate with straight tip, jointed to the thickish, very short style; stigmas 3, slender, rather short.

Type locality: "Habitat in Europae paludibus."

Distribution: Dry sunny banks and meadows, Newfoundland to Wisconsin, and southward to New Jersey, Pennsylvania, and Illinois; widely distributed in Eurasia. (Specimens examined from Newfoundland, Miquelon, Quebec, Nova Scotia, New Brunswick, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Ontario, Ohio, Michigan.)

Illustrations: Schkuhr, Riedgr. *pl. Kk, f. 99;* Britt. & Brown, Ill. Fl. *f. 768;* ed. 2. *f. 1031;* Engler, Pflanzenreich 4[20]: 430 *f. 68, E–H;* Rob. & Fern. Man. *f. 465;* Kunze, Suppl. Riedgr. *pl. 4, f. 2;* Fl. Dan. *pl. 1050;* Boott, Ill. Carex 139. *pl. 450;* Jour. Russe Bot. **1911**: 113. *f. 93;* Sturm, Deuts. Fl. **53**: *pl. 8;* Reichenb. Ic. Fl. Germ. **8**: *pl. 251, f. 617–618;* Anderss. Cyp. Scand. *pl. 7, f. 78;* Host, Gram. Austr. **1**: *pl. 74;* Leers, Fl. Herborn. *pl. 15, f. 5;* Engl. Bot. ed. 2. *pl. 1657;* Benth. Handb. Brit. Fl. *f. 1124;* Coste, Fl. Fr. *pl. 3905;* Hegi, Ill. Fl. Mittel-Eur. *pl. 50, f. 3;* Hallier, Deuts. Fl. *pl. 440;* Karst. Deuts. Fl. 349. *f. 175 (1–3);* Lindm. Bild. Nord. Fl. *pl. 437B.*

372. **Carex Torreyi** Tuckerm. Enum. Caric. 21. 1843.

Carex abbreviata Schw.; Boott, Trans. Linn. Soc. **20**: 141. 1846. (Concerning type locality see note below.)

Cespitose, but not very densely, from short-prolonged rootstocks, the culms erect, slender, not stiff, 2.5–4 dm. high, in medium-sized clumps, sharply triangular with slightly convex sides, short-pubescent, usually exceeding the leaves, very rough above, aphyllopodic, dark-purplish-tinged at base; leaves with well-developed blades 2 or 3 to a culm, not septate-nodulose, inserted on lower third but not bunched, the blades softly short-pilose, flat with slightly revolute margins, flaccid, erect or ascending, 8–25 cm. long, 1.5–3 mm. wide, deep-green, the sheaths tight, soft-pubescent, cinnamon-brown-tinged, deeply concave at mouth, the ligule conspicuous, longer than wide; uppermost spike staminate, linear-clavate, erect, usually short-peduncled, occasionally nearly sessile or long-peduncled, 8–16 mm. long, 2–4 mm. wide, the scales ovate, acuminate or acute, 3-nerved, yellowish-brown with broad hyaline margins; pistillate spikes 1–3, short-oblong, 6–12 mm. long, 4–7 mm. wide, closely 10–25-flowered, in few to several rows, erect, sessile or short-peduncled, approximate or the lowest somewhat separate; lowermost bract short, from about the length of to exceeding the inflorescence, sheathless or very nearly so; uppermost bracts much smaller; scales ovate-orbicular, the lower acuminate, the upper acute, about as wide as but only half the length of the perigynia, reddish-yellow or brownish-yellow with broad white-hyaline margins and 3-nerved green center; perigynia ascending, broadly ovoid or broadly obovoid, 2.5–3 mm. long, 2 mm. wide, obscurely triangular in cross-section, round-tapering at base into a short broad stipe, membranaceous, puncticulate, strongly finely many-ribbed, yellowish-green, abruptly rounded at apex and depressed and abruptly beaked, the beak short, cylindric, truncate at orifice, hyaline and colored; achenes obovoid, nearly filling the perigynium, triangular with concave sides, 2.5 mm. long, 1.75 mm. wide, substipitate, short-apiculate with straight tip, jointed with the very short thick exserted style; stigmas 3, slender, short but rather prominent.

Type locality: See note below.

Distribution: Dry soil, Manitoba and Minnesota to Alberta, and southward to South Dakota and along the foothills of the Rocky Mountains to Colorado. (Specimens examined from Manitoba, Minnesota, Saskatchewan, North Dakota, South Dakota, Alberta, Montana, Wyoming, Colorado.)

Illustrations: Britt. & Brown, Ill. Fl. *f. 769;* ed. 2. *f. 1032;* Rob. & Fern. Man. *f. 464;* Engler, Pflanzenreich 4[20]: 430. *f. 68, J–K;* Boott, Ill. Carex 21. *pl. 56, f. 1;* Am. Jour. Sci. **49**: *pl. EE, f. 109.*

Note: Evidently specimens of this species were mixed by Torrey with *Carex pallescens.* It may be surmised that the Schweinitz specimen came from Torrey, and that he in turn had received them as a part of the Richardson material collected at Carlton House. The species is not known from Pennsylvania or New York and the facts recited by Boott (Ill. Carex **1**: 21.) self-evidently show some mix-up of specimens. In the original description the type locality is not given and is erroneously guessed. It and the correct authorship of the species was supplied later by Boott (*loc.*

cit.). Specimens in the Torrey Herbarium are the basis for the type locality given for *C. Torreyi* Tuckerm., "Hab. Nov. Ebor., Torr." These further illustrate the same mix-up.

EDITORIAL NOTE: In his manuscript the author used Schweinitz's name for this species, regarding *C. Torreyi* as a homonym of *C. Torreyana* Schw. 1824 and *C. Torreyana* Dewey, 1826.

373. **Carex Swanii** (Fernald) Mackenzie, Bull. Torrey Club **37**: 246. 1910.

"*Carex virescens* Muhl." Britt. & Brown, Ill. Fl. **1**: 316. *f. 743.* 1896. (And other recent authors.) Not *C. virescens* Willd. 1805.
Carex virescens var. *minima* Barratt; L. H. Bailey, Mem. Torrey Club **1**: 77. 1889. (Type from Connecticut.) Not *C. minima* Boullu, 1878.
Carex virescens var. *Swanii* Fernald, Rhodora **8**: 183. 1906. (Type from Manchester, Vermont.)
Carex virescens var. *enormis* Farwell, Am. Midl. Nat. **12**: 51. 1930. (Type from Michigan.)

Densely cespitose, the rootstock very short, the clumps medium-sized, the culms slender, erect or in large forms prostrate, usually 1.5–6 dm. high, but sometimes up to 13 dm., leafy, triangular, roughened above, sparsely hairy, normally exceeded by the leaves, but sometimes exceeding them, aphyllopodic, reddish-purple-tinged at base, but much less so than in *Carex virescens*, the basal sheaths breaking and becoming filamentose; sterile shoots elongate, conspicuous; well-developed leaves 3–6 to a culm, not bunched, the blades short-pilose (more strongly beneath), flat, erect-ascending, flaccid, dull-green, the larger 1.5–3 dm. long, 1.5–3 mm. wide, long-attenuate, the uppermost usually inserted shortly below the lowest spike (usually about 3 cm. but occasionally much more), strongly exceeding head; sheaths long, tight, short-pilose, the lowest yellowish-brown-tinged ventrally, concave at mouth, the ligule conspicuously longer than wide; spikes 2–5, oblong-cylindric to oblong-globose, 5–20 (30) mm. long, 3–5 mm. wide, the lower half of the uppermost staminate and clavate, the remainder pistillate, erect, the upper approximate and sessile or short-peduncled, the lower more or less distant and more strongly peduncled, closely 10–30-flowered, the perigynia erect-appressed in several to many rows; bracts sheathless, the lowest setaceous, 3–6 cm. long, 0.5 mm. wide, twice exceeding inflorescence, the uppermost much smaller; pistillate scales broadly ovate, small, hyaline with 3-nerved green center, narrower than the perigynia, varying from strongly awned and about the length of the perigynia (the lowest) to acuminate or acute (the uppermost); scales of staminate flowers hyaline with green midrib, from acuminate to strongly obtuse; perigynia 2–2.25 mm. long, 1.5 mm. wide, broadly obovoid, compressed-triangular, not inflated, green, membranaceous, strongly white-hirsute, more or less strongly nerved dorsally, sessile, short-tapering at base, beakless and rounded or slightly tapering at apex, the orifice entire; achenes obovoid, 1.5 mm. long, 1 mm. wide, triangular with concave sides, completely filling the perigynium, yellowish-brown, short-stipitate, shortly bent-apiculate, jointed with the very short thick style which is as long as the apiculation; stigmas 3, short, brownish.

TYPE LOCALITY (of *Carex virescens* var. *Swanii* on which *C. Swanii* is based): Manchester, Vermont (*M. A. Day 202*).

DISTRIBUTION: Dry woodlands and thickets, Nova Scotia to Wisconsin, and southward to North Carolina, Tennessee and Arkansas. (Specimens examined from Nova Scotia, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, Ohio, Michigan, Wisconsin, Illinois, Indiana, Kentucky, Tennessee, Missouri, Arkansas.)

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 743;* ed. 2. *f. 1026;* Rob. & Fern. Man. *f. 433;* Rep. N. J. Mus. **1910**: *pl. 25, f. 6;* Boott, Ill. Carex 28, in part. *pl. 73* (right hand figure); Knobel, Grasses *pl. 26, f. 66.*

NOTE 1: See discussion in Bull. Torrey Club **37**: 246–249 concerning this species and *Carex virescens* Muhl.

NOTE 2: A specimen in Herb. Goodenough from Jamaica may be surmised to be from Jamaica, Long Island, New York. Extensive collecting in the Island of Jamaica has not resulted in the discovery of any species of this group.

374. **Carex virescens** Muhl.; Willd. Sp. Pl. **4**: 251. 1805.

Carex costata Schw. Ann. Lyc. N. Y. **1**: 67. 1824. (Type from Easton, Pennsylvania.) Not *C. costata* Presl, 1819.
Carex virescens var. *costata* Dewey, Am. Jour. Sci. **9**: 260. 1825. (Based on *C. costata* Schw.)
Olamblis virescens Raf. Good Book 26. 1840. (Based on *Carex virescens* Muhl.)

Carex virescens var. *elliptica* Olney, Caric. Bor.-Am. 5, name only. 1871; L. H. Bailey, Mem. Torrey Club 1: 76, as synonym. 1889.
Carex costellata Britton, Bull. Torrey Club 22: 223. 1895. (Based on *C. costata* Schw.)

Densely cespitose, the rootstock very short, the clumps medium-sized or large, the culms slender, erect or ascending, 4–10 dm. high, leafy, triangular, roughened above, sparsely hairy, much exceeding the leaves, strongly aphyllopodic, strongly reddish-purple at base, the basal sheaths breaking and becoming filamentose; sterile shoots elongate, conspicuous; well-developed leaves about 4 to a culm, not bunched, the blade short-pilose (more strongly beneath), flat, flaccid, deep-green, erect-ascending, about 2 dm. long, 2–4 mm. wide, long-attenuate, the uppermost inserted very much (usually 2–3 dm.) below lowest spike, the sheaths very long, tight, short-pilose, yellowish-brown-tinged ventrally, deeply concave at mouth, the ligule much longer than wide; spikes 2–5, linear-cylindric, 1–4 cm. long, 2.5–4 mm. wide, the lower half of the uppermost staminate and clavate, the remainder pistillate, erect, the upper approximate and sessile or short-peduncled, the lower separate and more strongly peduncled, closely flowered above, rather loosely flowered at base, the perigynia 20–60, erect-appressed in several rows; bracts nearly sheathless, the lowest leaflet-like, 0.5–3 mm. wide, and at times as much as 2 dm. long, somewhat exceeding the inflorescence, the upper much reduced; pistillate scales broadly ovate, small, hyaline, with 3-nerved green center, narrower than the perigynia, varying from strongly awned and nearly the length of the perigynia (the lowest) to acuminate, acute or even obtuse (uppermost) and much shorter than the perigynia; scales of staminate flowers hyaline with green midrib, from acuminate to strongly obtuse; perigynia 2–2.5 mm. long, 1.5 mm. wide, oblong-elliptic or obovoid, compressed-triangular, not inflated, deep-green, membranaceous, strongly white-hirsute, usually strongly costate dorsally, sessile, beakless, tapering somewhat to the blunt apex and more at base, the orifice hyaline, entire; achenes elliptic-obovoid, 1.5–2 mm. long, 1 mm. wide, triangular with concave sides, completely filling the perigynium, dark-brown, sessile, straight-apiculate, jointed with the short rather thickish style which is much longer than the apiculation; stigmas 3, short, dark-brown.

TYPE LOCALITY: "Habitat in Pennsylvania."

DISTRIBUTION: Dry woods, usually on rocky banks or steep slopes, Maine to Indiana, and southward to Georgia and Tennessee. (Specimens examined from Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, West Virginia, Virginia, North Carolina, Georgia, Ohio, Indiana, Kentucky, Tennessee.) The record from Ontario is based on *Carex Swanii* (Fernald) Mackenzie.

ILLUSTRATIONS: Schkuhr, Riedgr. *pl. Mmm, f. 147;* Britt. & Brown, Ill. Fl. *f. 744;* ed. 2. *f. 1027;* Rob. & Fern. Man. *f. 432;* Boott, Ill. Carex 28, in part. *pl. 73* (left hand figure).

NOTE 1: See discussion in Bull. Torrey Club 37: 246–249 concerning this species and *Carex Swanii* (Fernald) Mackenzie.

NOTE 2: *Fendler 1604* from Venezuela, referred here by Boott (Ill. Carex 28) and by Kükenthal (in Engler, Pflanzenreich 4^{20}: 432) represents a closely allied but distinct species.

375. **Carex boliviensis** Van Heurck & Muell.-Arg. in Van Heurck, Obs. Myc. 32. 1870.

Carex Lorentziana Griseb. Abh. Ges. Wiss. Gött. 19: 171. 1874. (Type from northwestern Argentina.)
Carex galbana L. H. Bailey, Bot. Gaz. 25: 271. 1898. (Type from State of Mexico.)

Cespitose from elongate, interwoven, woody rootstocks, the culms 0.5–4.5 dm. high, sharply triangular, very slender and becoming decumbent, rough on the angles above, about twice exceeding the leaves, brownish and somewhat fibrillose at base, phyllopodic, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 5–10 to a fertile culm, clustered immediately above base, the blades stiff, slightly glaucous-green, spreading, at base flat or channeled, 2.5–10 cm. long, 1.5–3 mm. wide, the apex slender with revolute margins, sparsely pubescent at base, especially on margins, otherwise glabrous, the sheaths truncate at mouth, yellowish-brown-tinged and reddish-brown-spotted, the ligule very short; spikes 2 or 3, closely contiguous, the terminal normally gynaecandrous, 8–16 mm. long, 4–5 mm. wide, sessile or slightly peduncled, the lower half staminate and clavate, the lateral somewhat shorter, pistillate, oblong, erect, sessile, or very nearly so, closely flowered, the perigynia 10–25, erect-ascending, in several rows; bracts sheathless, the lowest scale-like,

long-awned, shorter than inflorescence, the head sometimes with an empty leaflet-like bract developed 1 cm. or less beneath spikes; scales ovate, obtuse or acutish or slightly mucronate, reddish-brown with 3-nerved lighter center and slightly hyaline margins, rather narrower than and about two thirds the length of perigynia; perigynia elliptic-ovoid, 3 mm. long, 1.75 mm. wide, not inflated, somewhat flattened-triangular, subcoriaceous, light-olive-green, puncticulate, granular, lightly nerved ventrally, strongly several-ribbed dorsally, glabrous, sessile, round-tapering at base, short-tapering at apex, the apex beakless, minutely emarginate; achenes oblong-obovoid, nearly filling perigynium, triangular with concave sides, 2 mm. long, 1.25 mm. wide, substipitate, yellowish-brown, granular, short-apiculate, the apiculation straight, jointed with the short thickish style which is much longer than the apiculation; stigmas 3, short, blackish.

TYPE LOCALITY: "In Bolivia andinae prov. Larecaja prope Sorata altitud. 10–11,000 ped. (*Mandon n. 1428* in hb. H. van Heurck et in hb. DC.)"

DISTRIBUTION: Dry open places, high mountains, from Mexico State to Argentina. (Specimens examined from State of Mexico to Argentina and Bolivia.)

376. **Carex complanata** Torr. & Hook.; Torr. Ann. Lyc. N. Y. 3: 408. 1836.

Carex triceps Michx. Fl. Bor. Am. **2**: 170. 1803. (Type from Carolina.) Not *C. triceps* Schrank, 1789.
Facolos complanata Raf. Good Book 26. 1840. (Based on *Carex complanata* Torr. & Hook.)
Carex Bolliana Böck. Flora **61**: 40. 1878. (Type from Texas.)

Cespitose in rather small clumps, not stoloniferous, the culms slender but stiff and erect, 2–6 dm. high, glabrate, triangular with slightly concave sides, strongly exceeding the leaves, aphyllopodic, strongly reddish-purple at base; well-developed leaves usually 4–6 to a culm, on lower fourth, mostly bunched above the base, the blades glabrate with traces of pubescence toward base or occasionally below, not septate-nodulose, 1–3 dm. long, 1.5–3 mm. wide, thickish and rather stiff, ascending, flat with revolute margins, long-attenuate, the uppermost inserted from shortly to much below inflorescence and more or less strongly exceeding it; sheaths long, tight, sparingly hairy, concave and short-pilose at mouth, the ligule much wider than long; spikes 2–5, usually 3, oblong, sessile or nearly so, 6–15 mm. long, 5–7 mm. wide, approximate or the lowest slightly remote, the terminal gynaecandrous with the lower third staminate and clavate, the lateral pistillate, closely 15–30-flowered in several to many rows; lowest bract leaflet-like, several times length of inflorescence, not sheathing, the others much smaller; pistillate scales ovate-triangular, several-nerved, straw-colored and reddish-brown-tinged with hyaline margins and green center, narrower and from shorter to slightly longer than perigynia, varying from obtuse to short-rough-awned; staminate scales greenish-straw-colored, acuminate or short-awned; perigynia broadly obovoid, somewhat flattened ventrally and obtusely triangular, at maturity appressed or ascending, olive-green, submembranaceous, more or less granular-roughened and slightly asperulous, very obscurely nerved or nerveless ventrally except for the two marginal nerves, more or less strongly nerved dorsally, especially toward apex, 2–2.5 mm. long, 1.5 mm. wide, round-tapering and sessile at base, rounded and beakless at apex, the orifice slightly emarginate; achenes obovoid, sharply triangular with concave sides and prominent rounded angles, nearly filling the perigynium, 1.75 mm. long, 1.25 mm. wide, short-stipitate, short-apiculate with somewhat bent tip, jointed with the very short thickish style; stigmas 3, slender, short; anthers reddish.

TYPE LOCALITY: "Hab. Texas, *T. Drummond.* (Texas collection III, *No. 424.*)"

DISTRIBUTION: Dry, often sterile, pine lands. Florida and Texas, and northward to southern New Jersey, chiefly on the coastal plain, and in the interior to Arkansas. (Specimens examined from New Jersey, Delaware, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Texas.)

ILLUSTRATION: Am. Jour. Sci. **48**: *pl. DD, f. 103.*

377. **Carex hirsutella** Mackenzie, Bull. Torrey Club **50**: 349. 1923.

Carex hirsuta Willd. Sp. Pl. **4**: 252. 1805. (Type from North America.) Not *C. hirsuta* Suter, 1802.
"*Carex viridula* Michx." Schw. & Torr. Ann. Lyc. N. Y. **1**: 320. 1825.

Olamblis hirsuta Raf. Good Book 26. 1840. (Based on *Carex hirsuta* Willd.)
Carex triceps var. *hirsuta* L. H. Bailey, Mem. Torrey Club **1**: 35. 1889. (Based on *C. hirsuta* Willd.)
"*Carex triceps* Michx." Britt. & Brown, Ill. Fl. **1**: 316. 1896.
"*Carex complanata* Torr." Mackenzie, in Britt. & Brown, Ill. Fl. ed. 2. **1**: 414. 1913.
Carex complanata var. *robusta* Burnham, Torreya **19**: 134. 1919. (Type from Lake George, New York.)

Cespitose, not stoloniferous, the culms slender but stiff and erect, 2–9 dm. high, growing in small to good-sized clumps, somewhat pubescent, triangular with slightly concave sides, usually exceeded by the upper leaves, strongly reddened at base; well-developed leaves usually 5 or 6 to a culm, on lower fourth (except uppermost) but not bunched at base, not septate-nodulose, the blades strongly short-pubescent on both sides, 1–2.5 dm. long, 1.5–4 mm. wide, flat, not thickish and not stiff, erect-ascending, the upper culm-leaf inserted from moderately to much below the inflorescence, but usually exceeding it; sheaths long, tight, hairy, concave and short-pilose at mouth, the ligule wider than long; spikes 2–5, usually 3 or 4, oblong or oblong-cylindric, 6–18 mm. long, 5–7 mm. wide, the uppermost gynaecandrous with lower third staminate and clavate, the others pistillate, all approximate or the lower somewhat separate, erect, sessile or very short-peduncled, closely 15–30-flowered, in several to many rows; lower bract 1.5 mm. wide, about three times the length of the inflorescence, the others much smaller; pistillate scales ovate-triangular, with green 3-nerved center and broad hyaline margins, narrower and shorter than the perigynia, varying from short-cuspidate to obtuse; staminate scales whitish with green midrib, acuminate or cuspidate; perigynia broadly obovoid or obovoid-orbicular, obscurely obtusely triangular, markedly flattened ventrally at maturity, appressed or ascending, submembranaceous, more or less granular, slightly more than 2 mm. long, 1.5 mm. wide, round-tapering at base, rounded and very obtuse at apex, or very minutely pointed, strongly several-nerved dorsally, more lightly several-nerved ventrally; achenes sharply triangular with concave sides and prominent rounded angles, obovoid, nearly filling the perigynium, 1.75 mm. long, 1.25 mm. wide, sessile, short-apiculate with somewhat bent tip, jointed with the very short thickish style; stigmas 3, slender, short; anthers yellowish.

Type locality (of *Carex hirsuta* Willd. on which *C. hirsutella* is based): "Habitat in America boreali."

Distribution: Dry copses and meadows, best developed in calcareous districts, Maine to southern Ontario and Michigan, and southward to Alabama and Texas. (Specimens examined from Maine, Vermont, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Alabama, Mississippi, Ontario, Ohio, Michigan, Indiana, Kentucky, Tennessee, Illinois, Iowa, Missouri, Arkansas, Oklahoma, Texas.)

Illustrations: Schkuhr, Riedgr. *pl. Www, f. 172;* Britt. & Brown, Ill. Fl. *f. 745;* ed. 2. *f. 1028;* Engler, Pflanzenreich 4^{20}: 430. *f. 68, A–D;* Rep. N. J. Mus. **1910**: *pl. 25, f. 2;* Boott, Ill. Carex 48, in part. *pl. 128* (as *C. triceps*).

378. **Carex caroliniana** Schw. Ann. Lyc. N. Y. **1**: 67. 1824.

Carex Smithii Porter; Olney, Caric. Bor.-Am. 2, without description. 1871; Wood, Bot. & Fl. ed. 1873. 374. 1873. (Type from southeastern Pennsylvania.) Not *C. Smithii* Tausch, 1821.
Carex gynandra var. *caroliniana* Olney, Caric. Bor.-Am. 5. 1871. (Based by synonymy on *C. caroliniana* Schw.)
Carex triceps var. *Smithii* Porter; L. H. Bailey, Bot. Gaz. **13**: 88. 1888. (Based on *C. Smithii* Porter.)

Densely cespitose, not stoloniferous, the culms slender but stiff and erect, 2.5–8 dm. high, growing in small to medium-sized clumps, glabrate, triangular with concave sides, usually much exceeded by the upper leaves, aphyllopodic, strongly reddened at base; well-developed leaves usually 4 or 5 to a culm, on the lower half (except uppermost) but not bunched, not septate-nodulose, the blades essentially glabrate, but with traces of pubescence especially below and toward the base, 1–3 dm. long, 1.5–3 mm. wide, not stiff, flat, erect-ascending, the upper culm-leaf inserted from 2–12 cm. below the inflorescence and much exceeding it; the sheaths long, tight, more or less strongly soft-hairy, truncate at mouth, reddish-brown-tinged or spotted ventrally, the ligule about as long as wide; spikes usually 3, oblong-cylindric to cylindric, 8–18 mm. long, 4 mm. wide, the uppermost gynaecandrous with its lower half staminate, the others pistillate, all approximate or the lower slightly remote, erect, sessile or

slightly peduncled, closely 15–30-flowered in several rows; lowest bract about 1 mm. wide, several times the length of the inflorescence, not sheathing, the others much smaller; pistillate scales ovate-triangular, not pilose, straw-colored and slightly reddish-brown-tinged, with broad hyaline margins and 3-nerved green center, narrower and shorter than the perigynia, varying from short-cuspidate to obtuse; staminate scales straw-colored with green midrib, acuminate; perigynia obovoid-orbicular, obscurely obtusely triangular, being nearly round in cross-section, turgid and not flattened, squarrose-spreading at maturity, brownish-green, strongly few-ribbed, submembranaceous, glabrous or slightly asperulous, 2 mm. long, 1.5 mm. wide, tapering at base, abruptly tapering above and short-pointed or at times slightly beaked, the orifice entire or minutely emarginate; achenes strongly triangular with concave sides and prominent rounded angles, not entirely filling perigynium, broadly obovoid, sessile, 1.5–2 mm. long, somewhat narrower, with abruptly bent very short-apiculate tip, jointed with the very short thickish style; stigmas 3, slender, short.

TYPE LOCALITY: "Carol."

DISTRIBUTION: Dry meadows, New Jersey and Pennsylvania to North Carolina and Texas. (Specimens examined from New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, Ohio, Indiana, Tennessee, Missouri, Arkansas, Oklahoma, Texas.)

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 746;* ed. 2, *f. 1029.*

379. **Carex Bushii** Mackenzie, Bull. Torrey Club **37**: 241. 1910.

Carex hirsuta var. *cuspidata* Dewey, in Wood, Class-Book ed. 1861. 758. 1861. (Type from Illinois.)
Carex triceps var. *longicuspis* Kükenth. in Engler, Pflanzenreich **4**[20]: 431. 1909. (Type from St. Louis, Missouri.)

Densely cespitose, not stoloniferous, the culms slender, but stiff and erect, 3–9 dm. high, in medium-sized clumps, sparingly pubescent, triangular with concave sides, shorter than or exceeded by the leaves, aphyllopodic, more or less strongly reddish-tinged at base; well-developed leaves 3 or 4 to a culm, not septate-nodulose, on the lower half (excepting uppermost), not bunched, the blades short, soft-pubescent, especially below, the larger 2.5 dm. long, 1.5–3 mm. wide, flat, erect-ascending, not stiff, the uppermost bract-like leaf usually shortly below the inflorescence and exceeding it, the sheaths long, hairy, tight, concave or truncate and slightly reddish-brown-tinged at mouth, the ligule about as long as wide; spikes usually 2 or 3, oblong or oblong-cylindric, 5–20 mm. long, 5–8 mm. wide (without the scales), the uppermost gynaecandrous with its lower half staminate, the others pistillate, all erect, sessile or nearly so, densely 15–40-flowered in several to many rows; bract of lowest spike slender, awl-shaped, somewhat to much exceeding the head, not sheathing; second bract when present much smaller; pistillate scales triangular-lanceolate, long-acuminate, cuspidate or awned, sparingly pilose, narrower than but strongly exceeding the perigynia, somewhat reddish-brown-tinged, with 3-nerved green center and hyaline margins; scales of staminate flowers similar; perigynia 2.5–3.5 mm. long, 1.5–2 mm. wide, broadly obovoid, obtusely obscurely triangular, nearly round in cross-section, somewhat swollen at maturity, turgid and squarrose-spreading, olive-green, submembranaceous, rather strongly several-ribbed, minutely asperulous, tapering at base, substipitate, rounded but somewhat tapering at the blunt or slightly pointed entire apex; achenes obovoid, 2.5 mm. long, 1.8 mm. wide, sharply triangular with concave sides and prominent rounded angles, nearly filling the perigynium, substipitate, apiculate, the apiculation abruptly bent, jointed with the short bent thickish style; stigmas 3, slender, short.

TYPE LOCALITY: Fulton, Arkansas. (*Bush 2514*).

DISTRIBUTION: Dry meadows and banks in calcareous districts, Massachusetts to Michigan and southward to District of Columbia, Mississippi and Texas. (Specimens examined from Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, Michigan, Indiana, Illinois, Missouri, Kansas, Arkansas, Oklahoma, Mississippi, Texas.

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. ed. 2, *f. 1030;* Rob. & Fern. Man. *f. 431* (as *C. triceps* var. *hirsuta*).

NOTE: This species has a marked general resemblance to *Carex Buxbaumii* Wahl., a species to which it is not at all related.

54. **Hirtae** Tuckerm. Enum. Caric. 14. 1843; L. H. Bailey, Proc. Am. Acad. **22:** 72. 1886; Kükenth. in Engler, Pflanzenreich, **4**[20]**:** 742. 1909; Börner, Abh. Nat. Ver. Bremen **21:** 265. 1913; Mackenzie, in Rydb. Fl. Rocky Mts. 140. 1917; Mackenzie, Erythea **8:** 83. 1922. (All in greater part.) LASIOCARPAE Fries, Summa Veg. Scand. 70. 1845. LANUGINOSAE Carey, in A. Gray, Man. 560, in part. 1848. SCARIOSAE Carey, in A. Gray, Man. 560, in part. 1848. ARISTATAE Carey, in A. Gray, Man. 561, in small part. 1848. BIFURCATAE Kükenth. Bot. Jahrb. **27:** 545, in part. 1899. TRICHOCARPAE Holm, Am. Jour. Sci. IV. **16:** 462, in large part. 1903. Treated by L. H. Bailey (Proc. Am. Acad. **22:** 71. 1886) as belonging to the TRACHYCHLAENAE Drejer; also (*op. cit.* 74) as a subsection of the PALUDOSAE Fries. Species are referred to the VESICARIAE Tuckerm. by Meinshausen (Acta Hort. Petrop. **18:** 366. 1901).

Culms stout, leafy; rootstocks usually with long horizontal stout stolons; leaves septate-nodulose; spikes 3–10, the upper 1–5 staminate, slender, the others pistillate, many-flowered, erect; bracts leaf-like, equaling or exceeding the culm, often sheathing, especially the lowest one; pistillate scales ovate or lanceolate, acute to aristate; perigynia mostly ascending, rarely spreading, coriaceous or subcoriaceous or membranaceous, ovoid or oblong-ovoid or lanceolate-ovoid, somewhat inflated, nearly orbicular in cross-section, many-ribbed or many-nerved, usually hairy, round-tapering or rounded at the base, tapering or contracted into the bidentate or obliquely cut beak; achenes triangular, often short-stipitate, the sides flat or deeply concave, apiculate, jointed with the straight or slightly flexuous, slender style; stigmas 3.

Species of wet or swampy or even dry places. Eight species are widely distributed in the temperate parts of North America, of which one is also widely distributed in Europe and eastern Asia. One species, of broad range in Eurasia and reaching northern Africa, is very sparingly naturalized in North America. A few endemic Asiatic species are known and several more occur in South America. The group is not known in Australasia.

Perigynia glabrous to sparsely short-pubescent, the beak strongly bidentate.
  Culms brownish at base; perigynia strongly spreading, lanceolate-ovoid, tapering into the beak, strongly many-ribbed; pistillate scales 5–7-ribbed. 380. *C. turgescens.*
  Culms purplish-red at base; perigynia appressed-ascending, ovoid, contracted into the beak, many-nerved, the nerves impressed; pistillate scales 3-nerved. 381. *C. Walteriana.*
Perigynia densely or strongly pubescent, the ribs often largely obscured by the pubescence.
  Perigynia with beak strongly bidentate.
    Staminate scales not long-ciliate; foliage glabrous; sheaths not pilose at mouth; perigynium-teeth 0.25–0.5 mm. long (native species).
      Fertile culms phyllopodic, many-leaved, brownish or slightly purplish-red at base; sheaths not breaking and becoming filamentose ventrally; lowest bract conspicuously sheathing. 382. *C. Halliana.*
      Fertile culms aphyllopodic, few-leaved, strongly purplish-red at base; lowest bract sheathless to short-sheathing or sometimes long-sheathing; sheaths (at least the basal) breaking and becoming more or less strongly filamentose.
        Perigynia strongly and conspicuously 15–20-ribbed; perigynium-beak nearly half the length of the body, the teeth spreading, scabrous within. 383. *C. Houghtonii.*
        Perigynia with ribs largely obscured by the dense pubescence; perigynium-beak short, 1 mm. long, the teeth erect.
          Leaf-blades flat with revolute margins, 1.5–5 mm. wide, long-attenuate; lowest bract usually moderately exceeding culm; culms sharply triangular; achenes straight-apiculate. 384. *C. lanuginosa.*
          Leaf-blades strongly involute except toward base, 2 mm. wide or less, very long-attenuate; lowest bract strongly exceeding culm; culms obtusely triangular; achenes bent-apiculate. 385. *C. lasiocarpa.*
    Staminate scales long-ciliate; foliage usually soft-hairy; sheaths pilose at mouth; perigynium-teeth 0.75–1 mm. long (introduced species). 386. *C. hirta.*
  Perigynia with beak hyaline-tipped, obliquely cut at orifice, becoming shallowly or deeply bidentate at maturity.
    Foliage softly pubescent; staminate scales conspicuously white-ciliate; pistillate spikes 4.5–6 mm. wide, oblong-cylindric; perigynia 2-ribbed and obscurely nerved. 387. *C. Sartwelliana.*
    Foliage glabrous; staminate scales not ciliate; pistillate spikes oblong or short-oblong-cylindric; perigynia strongly many-ribbed. 388. *C. vestita.*

380. Carex turgescens Torr. Ann. Lyc. N. Y. 3: 419. 1836.

Cespitose from slender, elongate rootstocks, the stolons long, slender, horizontal, the culms 6–9 dm. high, slender, erect, obtusely triangular, much exceeding the leaves, smooth or nearly so, phyllopodic, brownish and more or less fibrillose at base; leaves with well-developed blades 3–6 to a fertile culm, on the lower third but not bunched, sparingly septate-nodulose, the blades firm, light-green, flat above with more or less revolute margins, channeled towards base, usually 1–3 dm. long, 1.5–5 mm. wide, long-attenuate, much roughened towards the apex, the sheaths tight, chestnut-brown-tinged at mouth, and prolonged upward beyond base of blade, the ligule much longer than wide; staminate spike solitary, slender-peduncled, narrowly linear, 3.5–5 cm. long, 2.5–4 mm. wide, the peduncle rough, the scales obovate, obtuse, light-reddish-brown with green 1–3-nerved center and white-hyaline margins; pistillate spikes 2 or 3, widely separate or sometimes approximate, erect, the upper on peduncles exserted one half to two times length of spikes, the lower on peduncles exserted 2–5 times length of spikes, the peduncles roughish, ancipital, the spikes oblong to globose, 2–3 cm. long, 1.5–2.5 cm. wide, loosely flowered, containing 10–20 strongly spreading perigynia in several rows; bracts leaflet-like, the lowest very long-sheathing, the upper shorter-sheathing, from much shorter than to exceeding inflorescence; scales ovate, acute to cuspidate, long-persistent, pale-yellowish-brown with strongly 5–7-ribbed green center and hyaline margins, about half width and one third to one half length of perigynia; perigynia lanceolate-ovoid, suborbicular in cross-section, somewhat inflated, 8–11 mm. long, 3-3.5 mm. wide, olive-green or becoming brownish-yellow, subcoriaceous, strongly and coarsely 20–30-ribbed, densely puncticulate, rounded and slightly tapering and substipitate at base, tapering at apex into the bidentate, slightly serrulate, hyaline-tipped beak 2–3 mm. long, the teeth stiff, erect, ciliate-scabrous within; achenes broadly obovoid, 3–3.5 mm. long, 2–2.5 mm. wide, loosely enveloped in lower half of perigynium-body, triangular with concave sides, short-stipitate, yellowish, abruptly apiculate and jointed with the long, straight, slender style; stigmas 3, slender, reddish-brown, rather short.

TYPE LOCALITY: "Hab. New Orleans, *Dr. T. Ingalls.*"
DISTRIBUTION: Wet pine lands, North Carolina to Florida and Louisiana. (Specimens examined from South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana.)
ILLUSTRATION: Boott, Ill. Carex 90. *pl. 264.*

381. Carex Walteriana L. H. Bailey, Bull. Torrey Club 20: 429. 1893.

Carex striata Michx. Fl. Bor. Am. 2: 174. 1803. (Type from Carolina.) Not *C. striata* Gilib. 1792.
"*Carex bullata* Schk." Ell. Bot. S. C. & Ga. 2: 556. 1824.
"*Carex polymorpha* Muhl." Torr. Ann. Lyc. N. Y. 3: 413. 1836.
Carex striata var. β Boott, Ill. Carex 58. 1858. (Type from New Jersey.)
Carex striata var. *brevis* L. H. Bailey, Mem. Torrey Club 1: 34. 1889. (Based on *C. striata* var. β Boott.)
Carex Walteriana var. *brevis* L. H. Bailey, Bull. Torrey Club 20: 429. 1893. (Based on *C. striata* var. *brevis* L. H. Bailey.)

Loosely cespitose and freely long stoloniferous, in large beds, the stolons horizontal, tough, scaly, the culms aphyllopodic, 2–8 dm. high, slender, erect, sharply triangular, smooth or slightly roughened above, usually exceeded by the upper leaves, purplish-red at base, the basal sheaths breaking and becoming filamentose; sterile shoots with many leaves, short; leaves with well-developed blades 3–6 to a fertile culm, the lower somewhat clustered, the upper regularly disposed, the blades septate-nodulose, thickish, light-green, strongly channeled and keeled at the base, flat above, usually 1.5–4 dm. long, 1.5–5 mm. wide, long-attenuate, much roughened towards the apex; sheaths more or less yellowish-brown-tinged ventrally, concave at mouth, the ligule wider than long; staminate spikes 1 or 2, linear, 1.5–5 cm. long, 3–4.5 mm. wide, the scales oblong-obovate, obtusish, slightly ciliate, reddish-purple with lighter center and hyaline margins; pistillate spikes 1 or 2, erect, not or but shortly exsert-peduncled, strongly separate, narrowly oblong, 2–6 cm. long, 5–10 mm. wide, containing 10–30 appressed-ascending perigynia in few rows, closely flowered above, rather loosely flowered below; bracts leaf-like, exceeding culm, the sheaths 0.5–3.5 cm. long; scales ovate, long-acu-

minate, short-cuspidate, or acute, reddish-purple with very wide 3-nerved green center and white-hyaline margins, narrower than and from half as long to nearly as long as the perigynia; perigynia narrowly to broadly ovoid, suborbicular in cross-section, somewhat inflated, 4–6 mm. long, 2–2.5 mm. wide, many-nerved, the nerves impressed, slender, the walls coriaceous, glabrous or sparsely short-pubescent, rounded at base, short-stipitate, contracted into the broad bidentate beak about one third the length of the body, the teeth widely separate, erect, or somewhat spreading, 0.5 mm. long, thickish; achenes obovoid, triangular with concave sides, rather loosely enveloped, sessile, 1.75–2 mm. long, 1.5 mm. wide, conspicuously bent-apiculate, jointed with the straight slender style; stigmas 3, slender, blackish.

TYPE LOCALITY (of *C. striata* Michx. on which *C. Walteriana* is based): "Hab. in Carolina."
DISTRIBUTION: Sunny pine barren swamps near the coast, southeastern Massachusetts to Florida. (Specimens examined from Massachusetts, New York, New Jersey, Delaware, Virginia, North Carolina, Georgia, Florida.)
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 709;* ed. 2. *f. 1065;* Rob. & Fern. Man. *f. 522;* Rep. N. J. Mus. 1910: *pl. 23, f. 7;* Boott, Ill. Carex 57. *pl. 151.*

382. **Carex Halliana** L. H. Bailey, Bot. Gaz. 9: 117. 1884.

Carex oregonensis Olney; A. Gray, Proc. Am. Acad. 8: 407, name only. 1872; L. H. Bailey, Proc. Am. Acad. 22: 73. 1886.

Loosely cespitose, and stoloniferous, the stolons long, horizontal, slender, rather tough, scaly, the clumps small, the culms erect, 1–5 dm. high, stiff, sharply triangular, smooth, phyllopodic, exceeding or about equaling leaves, brownish or but slightly purplish-reddened at base, and little or not at all fibrillose; sterile shoots more or less elongate, with ascending or erect blades; leaves with well-developed blades 4–8 to a fertile culm, clustered near base, sparingly septate-nodulose, the blades thick, glabrous, light-green, 1–3 dm. long, 3–5 mm. wide, flat above, strongly channeled at base, long-attenuate, and much roughened towards apex; sheaths tight, not breaking, yellowish-brown-tinged ventrally, concave at mouth, the ligule as wide as long; terminal 2 or 3 spikes staminate, approximate, sessile or short-peduncled, linear-clavate, 0.8–2.5 cm. long, 2.5–4 mm. wide, the peduncle smooth, the scales oblong-obovate, acutish, glabrous, erose, purplish-brown with lighter center and dull-white-hyaline margins; pistillate spikes usually 3 or 4, more or less strongly separate, erect-appressed, the upper sessile or nearly so, the lower peduncled, the peduncles smooth, the spikes linear-cylindric, 1.5–5 cm. long, 4.5–6 mm. wide, closely flowered above or attenuate at base, containing 20–40 appressed-ascending perigynia in several rows; bracts leaf-like, exceeding or equaling the culms, the lowest bract conspicuously sheathing, the others less so, the sheaths 15 mm. long or less; scales ovate, acute to cuspidate, slightly wider to rather narrower than and from about half to nearly length of perigynia, purplish-brown with conspicuous 3-nerved green center and dull-white-hyaline margins; perigynia with ovoid or obovoid body, little inflated, obtusely triangular in cross-section, 4–5 mm. long, 2–2.25 mm. wide, densely white-hispid, obscurely but strongly 15–20-ribbed, subcoriaceous, light-brownish, rounded at base, contracted at apex into the broad, strongly bidentate beak one fourth to one third the length of the whole, the teeth whitish, erect or slightly spreading, 0.25–0.5 mm. long, rough within; achenes obovoid, 2.5 mm. long, 1.5–1.75 mm. wide, closely enveloped, filling body of perigynium, sharply triangular with concave sides, sessile, brown, apiculate, jointed with the straight slender style; stigmas 3, slender, blackish.

TYPE LOCALITY: Oregon.
DISTRIBUTION: Mountain meadows, from southern Washington to Siskiyou county, California. (Specimens examined from Washington, Oregon, northern California.)
ILLUSTRATIONS: Engler, Pflanzenreich 4^{20}: 746. *f. 127;* Erythea 8: 84. *f. 46;* Abrams, Ill. Fl. Pacif. St. *f. 831;* Jepson, Man. Fl. Pl. Calif. *f. 204.*
EDITORIAL NOTE: In his manuscript the author used Olney's name for this species, regarding *C. Halliana* as a homonym of *C. Hallii* Olney, 1871.

383. **Carex Houghtonii** Torr. Ann. Lyc. N. Y. 3: 413. 1836.

"*Carex Houghtoniana* Torr." Dewey, Am. Jour. Sci. 30: 63. *pl. Bb, f. 91.* 1836. (Based on *C. Houghtonii* Torr.)

Loosely cespitose and stoloniferous, the stolons long, horizontal, slender, rather tough,

scaly, the clumps small, the culms erect, rather stiff, stoutish, 1.5–6.5 mm. high, sharply triangular, rough above, aphyllopodic, much exceeding the leaves, strongly purplish at base, the basal sheaths breaking and sparingly filamentose; sterile shoots elongate, with erect blades; leaves with well-developed blades usually 2–4 to a fertile culm, on lower third but not bunched, sparingly septate-nodulose, the blades glabrous, deep-green, thinnish, erect, flat with slightly revolute margins, long-attenuate, 8–20 cm. long, 2.5–4 mm. wide, roughened especially on the margins and towards the apex, the sheaths glabrous, tight, thin and yellowish-brown-tinged ventrally, not breaking, concave at mouth, the ligule as long as wide; staminate spike solitary (or often with an additional sessile shorter one near its base), slender, erect, linear, rough-peduncled, 1–3.5 cm. long, 2–4 mm. wide, the scales oblong-obovate, acutish or obtuse, smooth, subciliate, reddish-brown with white-hyaline margins and lighter center; pistillate spikes 1–3, normally 2, erect, sessile or short-rough-peduncled, remote, oblong, 1–4.5 cm. long, 8–12 mm. wide, the perigynia 15–30, closely arranged (or somewhat loosely at base), spreading or somewhat ascending in several to many rows, lower bract leaf-like, usually equaling or exceeding the culm, very short-sheathing or short-sheathing, the others much smaller; scales lanceolate or ovate-lanceolate, awned or cuspidate or the upper acuminate, narrower and shorter than the perigynia, reddish-brown with broad 3-nerved green center and narrow hyaline margins; perigynia with obovoid body, little inflated, obscurely triangular in cross-section, 5–6 mm. long, 2.5 mm. wide, strongly and conspicuously 15–20-ribbed, short-hirsute, submembranaceous, olive or brownish-green, rounded at base, abruptly contracted into a bidentate beak 2 mm. long, nearly half the length of the body, strongly purple between the teeth, the teeth spreading, 0.5 mm. long, scabrous within; achenes obovoid, 3–3.5 mm. long, 2 mm. wide, closely enveloped, nearly filling the perigynium-body, triangular with concave sides, yellowish-brown, substipitate, prominently apiculate, jointed with the straight slender style; stigmas 3, slender, short, blackish.

TYPE LOCALITY: "Found at Lake La Biche near the sources of the Mississippi River by Dr. Houghton; in the herbarium of Dr. Torrey."

DISTRIBUTION: Open sterile sandy or rocky soil, Newfoundland to Saskatchewan, and southward to Maine, Ontario, Michigan, and Minnesota. (Specimens examined from Newfoundland, Nova Scotia, New Brunswick, Quebec, Maine, New Hampshire, Vermont, New York, Ontario, Manitoba, Michigan, Wisconsin, Minnesota, Saskatchewan.)

ILLUSTRATIONS: Am. Jour. Sci. **30**: *pl. BB, f. 91;* Britt. & Brown, Ill. Fl. *f. 710;* ed. 2. *f. 1069;* Rob. & Fern. Man. *f. 520;* Boott, Ill. Carex 19. *pl. 51; pl. 151* (perigynium only).

NOTE: The name of this species as first published by Dewey was erroneously given as *Carex Houghtoniana* Torrey (*l. c.*). Torrey corrected this to *C. Houghtonii* (*l. c.*), saying: "It is hardly necessary to remark that in accordance with well established rules of botanical nomenclature, and the uniform practice of the most accomplished naturalists, we adopt the genitive termination wherever a species is named after its discoverer."

Later when Dewey came to publish *C. Sartwellii* (Am. Jour. Sci. **43**: 90. 1842), we find him saying: "Found by Dr. S. P. Sartwell in Junius, Seneca County, N. Y., after whom it is named, with the genitive termination and in accordance with well established rules of botanical nomenclature." But sad to relate we find the Index Kewensis (**1**: 438) citing this latter name as *C. Sartwelliana* Dewey.

384. **Carex lanuginosa** Michx. Fl. Bor. Am. **2**: 175. 1803.

Carex pellita Muhl.; Willd. Sp. Pl. **4**: 302. 1805. (Type from Pennsylvania.)
Diemisa pellita Raf. Good Book 27. 1840. (Based on *Carex pellita* Muhl.)
Carex Watsoni Olney, in S. Wats. Bot. King's Expl. 370. 1871. (Type from Carson City, Nevada.) Not *C. Watsoni* Boott, 1867, as synonym; nor *C. Watsoniana* Steud. 1855.
"*Carex aematorhyncha* Desv." Olney, in S. Wats. Bot. King's Expl. 373. 1871.
Carex filiformis var. *latifolia* Böck. Linnaea **41**: 309. 1877. (Based on *C. lanuginosa* Michx.)
Carex filiformis var. *aematorhyncha* W. Boott, in S. Wats. Bot. Calif. **2**: 250. 1880. (As to plant described only; not *C. aematorhyncha* Desv.)
Carex filiformis var. *lanuginosa* B. S. P. Prel. Cat. N. Y. 63. 1888. (Based on *C. lanuginosa* Michx.)
Carex lanuginosa var. *kansana* Britton; Britt. & Brown, Ill. Fl. **1**: 305. 1896. (Type from Kansas.)
Carex lasiocarpa var. *lanuginosa* Kükenth. in Engler, Pflanzenreich **4**[20]: 748. 1909. (Based on *C. lanuginosa* Michx.)
Carex lasiocarpa var. *lanuginosa* f. *kansana* "Britt." Kükenth. in Engler, Pflanzenreich, **4**[20]: 748. 1909. (Based on *C. lanuginosa* var. *kansana* Britton.)

Cespitose and freely long-stoloniferous, the stolons horizontal, long, tough, scaly, the culms 3–10 dm. high, in large beds, stiff, erect, sharply triangular, rough above, aphyllopodic, dark-purplish-red at base, the lower sheaths breaking and becoming more or less strongly

filamentose; sterile shoots numerous, elongate; leaves with well-developed blades 2–5 to a fertile culm, more numerous on the sterile shoots, septate-nodulose, the blades dull-green, thinnish, flat with revolute margins, often exceeding the culms, 2–6 dm. long, 1.5–5 mm. wide, long-attenuate, rough, especially towards the tip; sheaths more or less purplish-tinged and deeply concave at mouth, the ligule as long as wide; staminate spikes usually 2 (the lower often small), slender, erect, long-peduncled, 2–6 cm. long, 2.5–4 mm. wide, the scales oblanceolate, acute to cuspidate, smooth or subciliate, light-reddish-brown with lighter center and dull-hyaline margins; pistillate spikes 2 or 3, widely separate, erect, sessile or short-peduncled, oblong-cylindric, 1.5–5 cm. long, 5–8 mm. wide, closely many-flowered, the perigynia 25–75, ascending in several to many rows; bracts sheathless or very short-sheathing, the blade of the lowest usually moderately exceeding the culm; scales lanceolate, long-acuminate, mucronate or awned, more or less ciliate, narrower than the perigynia, the lower usually exceeding the perigynia, the upper shorter, reddish-brown with broad 3-nerved green center and hyaline margins; perigynia broadly obovoid or ovoid, 2.5–3.5 mm. long, 1.75–2 mm. wide, suborbicular in cross-section, somewhat inflated, coriaceous, dull-brownish-green, densely soft-hairy, the numerous ribs usually largely hidden, sessile, rounded at base, abruptly very short-beaked, the beak 1 mm. long, deeply bidentate, the teeth erect, 0.5 mm. long; achenes broadly ovoid, triangular with concave sides and blunt angles, rather loosely enveloped, 1.75–2 mm. long, 1.5 mm. wide, sessile or nearly so, yellowish-brown, punctate, short-apiculate, jointed with the very short, straight style; stigmas 3, slender, blackish.

TYPE LOCALITY: "Hab. ad lacus Mistassins," Quebec.

DISTRIBUTION: Sunny swampy places, mostly in calcareous soils, New Brunswick to British Columbia, and southward to Tennessee, Arkansas, Texas, New Mexico, and southern California. One of our most widely distributed species. (Specimens examined from New Brunswick, Quebec, Ontario, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, District of Columbia, Tennessee, Ohio, Indiana, Michigan, Wisconsin, Illinois, Minnesota, Iowa, Missouri, Arkansas, Texas, Oklahoma, Kansas, Nebraska, North Dakota, South Dakota, Manitoba, Saskatchewan, Alberta, Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, British Columbia, including Vancouver Island, Washington, Oregon, California.)

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 711;* ed. 2. *f. 1067;* Schkuhr, Riedgr. *pl. Nnn, f. 149, 150;* Rep. N. J. Mus. **1910:** *pl. 23, f. 3;* Boott, Ill. Carex 48. *pl. 129;* Erythea **8:** 85. *f. 47;* Jepson, Fl. Calif. 1: 240. *f. 36, d–f;* Abrams, Ill. Fl. Pacif. St. *f. 832;* Torr. Fl. N. Y. *pl. (first no.) 145* (as *Carex pellita*); Clements, Rocky Mt. Fl. *pl. 45, f. 15.*

NOTE: The habitat of this plant differs from that of *C. lasiocarpa* Ehrh. very markedly, as does also its distribution.

385. **Carex lasiocarpa** Ehrh. Hannov. Mag. **1784:** 132. 1784.

"*Carex hirta* L." Oeder, Fl. Dan. **7:** 5. *pl. 379* (in part). 1768. (From northwestern Europe.)
"*Carex tomentosa* L." Lightf. Fl. Scot. 553. 1777. (From Scotland.)
Carex splendida Willd. Fl. Berol. 33. *pl. 1, f. 3.* 1787. (Type from northwestern Germany.)
"*Carex filiformis* L." Gooden. Trans. Linn. Soc. **2:** 172. *pl. 20, f. 5* (and most authors). 1794. (From England.)
Trasus filiformis S. F. Gray, Nat. Arr. Brit. Pl. **2:** 59. 1821. (As to plant described only. Based on *Carex filiformis* of authors.)
Diemisa filiformis Raf. Good Book 27. 1840. (Based on *Carex filiformis* of authors.)
Carex filiformis var. *australis* L. H. Bailey, Mem. Torrey Club **1:** 56. 1889. (Type from central Europe.)
Carex filiformis f. *meduanensis* Lév. & Vaniot, Bull. Acad. Géogr. Bot. **10:** 35. 1901. (Type from France.)
Carex lasiocarpa f. *robusta* Junge, Verh. Nat. Ver. Hamburg III. **12:** 21. 1905. (Type from Germany.)
Carex lasiocarpa f. *stricta* Junge, Verh. Nat. Ver. Hamburg III. **12:** 22. 1905. (Type from Germany.)

Loosely cespitose with long-creeping rootstocks long stoloniferous, the stolons horizontal, long, tough, scaly, the culms 3–12 dm. high, in large clumps, erect, slender, obtusely triangular, smooth, aphyllopodic, purplish-red at base, the lower sheaths long, breaking and becoming strongly filamentose; sterile shoots very numerous, elongate; leaves with well-developed blades 2–5 to a fertile culm, more numerous on the sterile shoots, septate-nodulose, the blades light-green, thinnish, very elongate, often 7 dm. long, 2 mm. or less wide, flattish at base, strongly involute above, the tip very long-attenuate, roughened triangular and soon becoming dried-up, the sheaths yellowish-brown-tinged ventrally, concave at mouth, the ligule as long as wide; staminate spikes usually 2 (the lower often small), slender, erect, long-peduncled, 2–6

cm. long, 2.5–3.5 mm. wide, the scales oblanceolate, acute to cuspidate, smooth, light-reddish-brown with lighter center and dull-hyaline margins; pistillate spikes 1, 2 or 3, widely separate, erect, sessile or very nearly so, 0.5–5 cm. long, 5–8 mm. wide, oblong-cylindric, closely flowered, the perigynia 15–50, ascending in several to many rows; bracts sheathless or very short-sheathing, or at times the lowest long-sheathing, the blade of the lowest strongly exceeding the culm, those of the others shorter than to exceeding the culm; scales lanceolate or ovate-lanceolate, sparingly ciliate at tip, narrower than the perigynia, the lower mucronate-awned and exceeding the perigynia, the upper acute and exceeded by the perigynia, purplish-brown with broad 3-nerved green center and very narrow dull-hyaline margins; perigynia oblong-obovoid or oblong-ovoid, suborbicular in cross-section, somewhat inflated, 3–5 mm. long, 1.75 mm. wide, coriaceous, dull-brownish-green, densely soft-hairy, the ribs very obscure, round-tapering at base, strongly contracted at apex into a short, bidentate beak 1 mm. long, the teeth erect, 0.5 mm. long; achenes broadly ovoid, triangular with concave sides and blunt angles, rather loosely enveloped, 1.75–2 mm. long, 1.5 mm. wide, sessile or nearly so, yellowish-brown, strongly punctate, abruptly slenderly apiculate, the tip bent, jointed with the straight or flexuous slender style; stigmas 3, slender, blackish.

TYPE LOCALITY: Sweden.

DISTRIBUTION: Sphagnum swamps, usually in large colonies on borders of lakes, calcareous districts, glaciated regions. Newfoundland to Keewatin and British Columbia and southward to northern New Jersey, Pennsylvania, Iowa, Idaho and Washington. (Specimens examined from Newfoundland, Quebec, Nova Scotia, New Brunswick, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Ontario, Ohio, Michigan, Wisconsin, Indiana, Illinois, Iowa, Minnesota, Manitoba, Saskatchewan, Keewatin, Idaho, Washington, British Columbia, Vancouver.)

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 712;* ed. 2. *f. 1068;* Rob. & Fern. Man. *f. 519;* Schkuhr, Riedgr. *pl. K, f. 45;* Fl. Dan. *pl. 379* (except separate spikes) and *1344;* Boott, Ill. Carex 50. *pl. 132;* Abrams, Ill. Fl. Pacif. St. *f. 833;* Jour. Russe Bot. **1911:** 194. *f. 158;* Sturm, Deuts. Fl. **53:** *pl. 3;* Reichenb. Ic. Fl. Germ. **8:** *pl. 265, f. 643;* Trans. Linn. Soc. **2:** *pl. 20, f. 5;* Anderss. Cyp. Scand. *pl. 8, f. 103;* Host, Gram. Austr. **1:** *pl. 86;* Coste, Fl. Fr. *pl. 3859;* Hegi, Ill. Fl. Mittel-Eur. *pl. 54, f. 4;* Engl. Bot. *pl. 904;* ed. 2, *pl. 1676;* Benth. Handb. Brit. Fl. ed. 2, *f. 1122;* Hallier, Deuts. Fl. *pl. 445;* Karst. Deuts. Fl. *f. 171 (3);* Willd. Fl. Berol. *pl. 1, f. 3.*

386. **Carex hirta** L. Sp. Pl. 975. 1753.

Carex hirta * *hirtaeformis* Pers. Syn. Pl. **2:** 547. 1807. (Type European; not definitely given.)
Carex villosa Stokes, Bot. Mat. Med. **4:** 346. 1812. (Type from England.)
Carex hirta var. *sublaevis* Hornem. Dansk Oecon. Pl. ed. 3. **1:** 953. Je 1821; Fl. Dan. **29:** 7. *pl. 1711.* S 1821. (Type from Denmark.)
Trasus hirtus S. F. Gray, Nat. Arr. Brit. Pl. **2:** 58. 1821. (Based on *Carex hirta* L.)
Carex hirta var. *hirtaeformis* Reichenb. in Mössler, Handb. ed. 2. 1649. 1829. (Based on *C. hirta* * *hirtaeformis* Pers.)
Carex hirta var. *humilis* Peterm. Fl. Lips. 62. 1838. (Type from Leipzig, Germany.)
Carex hirta var. *vulgaris* Peterm. Anal. Pfl. 516. 1846. (Based on *C. hirta* L.)
Carex hirta var. *major* Peterm. Anal. Pfl. 516. 1846. (Type from Leipzig, Germany.)
Carex hirta var. *villosa* Peterm. Anal. Pfl. 516. 1846. (Type from Leipzig, Germany.)
Carex hirta var. *glabrata* Peterm. Anal. Pfl. 516. 1846. (Based on *C. hirta* * *hirtaeformis* Pers.)
Carex hirta var. *androgyna* Peterm. Anal. Pfl. 517. 1846. (Type from Leipzig, Germany.)
Carex hirta a *vera* Neilr. Fl. Nieder-Oesterr. 122. 1859. (Based on *C. hirta* L.)
Carex hirta var. *pseudo-hirta* Schur, Enum. Pl. Transsilv. 711. 1866. (Type from Transsylvania.)
Carex hirta α *pilosa* Celak. Prodr. Fl. Böhm. 74. 1867. (Type from Bohemia.)
Carex hirta β *subglabra* Celak. Prodr. Fl. Böhm. 74. 1867. (Type from Bohemia.)
Carex hirta var. *spinosa* Mortensen, Bot. Tidssk. **5:** 94. 1872. (Type from southern Sweden.)
Carex hirta var. *glabrescens* St.-Lag. in Cariot, Étude Fl. ed. 8. **2:** 871. 1889. (Type from France.)
Carex hirta var. *hirtaeformis* f. *subhirtaeformis* Kneucker, Allg. Bot. Zeits. **4:** 165. 1898. (Type from Baden, Germany.)
Carex hirta f. *hirtiformis* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 223. 1903. (Based on *C. hirta* * *hirtaeformis* Pers.)
Carex hirta f. *major* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 223. 1903. (Based on *C. hirta* var. *major* Peterm.)
Carex hirta f. *paludosa* A. Winkler; Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 223. 1903. (Type from central Europe.)
Carex hirta var. *aquatica* Waisb. Magyar Bot. Lap. **4:** 76. 1905. (Type from Hungary.)
Carex hirta f. *humilis* "Peterm." Kükenth. in Engler, Pflanzenreich 4^{20}: 751. 1909. (Based on *C. hirta* var. *humilis* Peterm.)
Carex hirta f. *latifolia* Waisb.; Kükenth. in Engler, Pflanzenreich 4^{20}: 751. 1909. (Type from Hungary.)
Carex hirta f. *villosa* "Peterm." Kükenth. in Engler, Pflanzenreich 4^{20}: 751. 1909. (Based on *C. hirta* var. *villosa* Peterm.)

Carex hirta f. *subhirtaeformis* "Kneucker" Kükenth. in Engler, Pflanzenreich 4[20]: 751. 1909. (Based on *C. hirta* var. *hirtaeformis* f. *subhirtaeformis* Kneucker.)
Carex hirta f. *pseudo-hirta* "Schur" Kükenth. in Engler, Pflanzenreich 4[20]: 751. 1909. (Based on *C. hirta* var. *pseudo-hirta* Schur.)
Carex hirta f. *spinosa* "Mortensen" Kükenth. in Engler, Pflanzenreich 4[20]: 751. 1909. (Based on *C. hirta* var. *spinosa* Mortensen.)

Loosely cespitose and long-stoloniferous, the stolons stout, tough, horizontal, scaly, the culms 2–10 dm. high, erect, rather slender, obtusely triangular, aphyllopodic, exceeding the leaves, smooth or nearly so, brownish or purplish at base, the basal sheaths breaking and becoming somewhat filamentose, the sterile shoots elongate, the leaves clustered at apex; leaves (not bracts) with well-developed blades 2–5 to a fertile culm, soft-hairy or rarely glabrate, obscurely more or less septate-nodulose, the lower clustered, the upper scattered, the blades thin, light-green, flat, 5–25 cm. long, 2–6 mm. wide, strongly roughened towards the long-attenuate apex, the sheaths tight, white-pilose and concave at mouth, the ligule as long as wide; staminate spikes 1–3, the upper slenderly long-peduncled with a scale-like bract at base, linear-oblong, 1.5–3 cm. long, 2.5–3.5 mm. wide, the scales oblong-obovate, truncate or obtuse, often awned cuspidate or mucronate, strongly long-ciliate and white-pilose, purplish-brown or becoming tawny-red with green 3-nerved center and hyaline margins; pistillate spikes 2 or 3, very widely separated, the lowest often nearly basal, erect, short-exsert-peduncled (the peduncles slender, hairy), oblong, 1.5–5 cm. long, 6–9 mm. wide, closely flowered above or more loosely at base and containing 10–35 ascending perigynia in several rows; bracts leaf-like, the lowest strongly sheathing, the upper short-sheathing, the uppermost usually exceeding culm; scales lanceolate-ovate, white-hairy and long-ciliate, long-acuminate, mucronate, or awned, narrower than and (excluding awn) from half to two thirds the length of the perigynia, purplish-brown, with green 3-nerved center and hyaline margins; perigynia ovoid-lanceolate, suborbicular in cross-section, somewhat inflated, 5–9 mm. long, 2.5 mm. wide, usually strongly white-pubescent, submembranaceous, greenish-straw-colored or light-brownish, strongly 15–20-ribbed, rounded at base, very short-stipitate, tapering at apex into a strongly bidentate beak, 1.5–2.5 mm. long, the teeth slender, 0.75–1 mm. long, hispidulous within and without; achenes obovoid-oval, loosely enveloped, 3 mm. long, 1.75 mm. wide, triangular with obtuse angles and slightly concave sides, yellowish, substipitate, tapering at apex, slender-apiculate and jointed with the nearly straight, slender, deciduous style; stigmas 3, slender, blackish.

TYPE LOCALITY: "Habitat in Europae sabulosis."
DISTRIBUTION: Dry fields and waste places, Prince Edward Island to eastern New York, Pennsylvania, and the District of Columbia; also Oregon. Very locally naturalized or adventive from Europe, erroneously recorded from Tennessee. (Specimens examined from Prince Edward Island, Massachusetts, New York, New Jersey, Pennsylvania, District of Columbia, Oregon.)
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 713;* ed. 2. *f. 1072;* Rob. & Fern. Man. *f. 524;* Schkuhr, Riedgr. *pl. Uu, f. 108;* Fl. Dan. *pl. 425, 1711;* Sturm, Deuts. Fl. **55**: *pl. 16;* Reichenb. Ic. Fl. Germ. **8**: *pl. 257, f. 628;* Anderss. Cyp. Scand. *pl. 8, f. 101;* Leers, Fl. Herborn. *pl. 16, f. 3;* Coste, Fl. Fr. *f. 3860;* Engl. Bot. *pl. 685;* ed. 2. *pl. 1677;* Benth. Handb. Brit. Fl. ed. 2. *f. 1123;* Hegi, Ill. Fl. Mittel-Eur. *pl. 54, f. 5;* Garcke, Fl. Deuts. *f. 2362;* Hallier, Deuts. Fl. *pl. 449;* Karst. Deuts. Fl. *f. 171 (1–2)*; Thomé, Fl. Deuts. *pl. 92, A–C.*

387. **Carex Sartwelliana** Olney, Proc. Am. Acad. **7**: 396. 1868.

Carex yosemitana L. H. Bailey, Mem. Torrey Club **1**: 8. 1889. (Change of name only.)
Carex Congdonii L. H. Bailey, Bot. Gaz. **21**: 6. 1896. (Type from Tuolumne County, California.)

Cespitose from stout rootstocks with short-ascending stolons, the culms rather stout, rather stiff, 3–9 dm. high, phyllopodic, much exceeding leaves, sharply triangular and slightly roughened above, brownish or purplish-red and not fibrillose at base, the basal sheaths not breaking and becoming filamentose, the sterile shoots elongate, the leaves clustered towards apex; leaves with well-developed blades 8–15 to a fertile culm, clustered on lower third, softly pubescent, not septate-nodulose, the blades light-green, not rigid, flat with revolute margins or channeled towards the base, usually 1–3.5 dm. long, 3–7 mm. wide, strongly roughened towards the attenuate apex; sheaths strongly cinnamon-brown-tinged and red-dotted ventrally, concave at mouth, the ligule longer than wide; terminal spike staminate, or occasionally with a few perigynia, more or less peduncled, linear or linear-clavate, 12–30 mm. long, 4.5–6 mm. wide,

the scales narrowly oblong-obovate, conspicuously white-ciliate, obtuse, purplish-brown with straw-colored center and narrow hyaline margins; pistillate spikes 3 or 4, approximate or somewhat separate, erect, sessile or slightly peduncled, oblong-cylindric, 12–40 mm. long, 4.5–6 mm. wide, containing 40–200 appressed perigynia, closely packed in several to many rows; lowest bract leaf-like, very lightly sheathing, about equaling inflorescence, the upper bracts much reduced; scales ovate or ovate-lanceolate, white-ciliate and appressed-hairy, awned, mucronate, or acute, purplish-brown with white-hyaline margins and conspicuous green 3-nerved center, somewhat narrower and from shorter to longer than the perigynia; perigynia 2.5–3.5 mm. long, 1.25–1.75 mm. wide, greenish or in age straw-colored, submembranaceous, white-pilose, the body obovoid or oblong-obovoid, triangular, not inflated, two-ridged and obscurely nerved, short-tapering at base, short-stipitate, abruptly beaked, the beak 1 mm. long, slender, conic, hyaline-tipped, obliquely cut, at length minutely bidentate; achenes broadly obovoid, 1.5 mm. long, 1–1.5 mm. wide, closely enveloped, triangular with concave sides and blunt angles, substipitate, yellowish, granular, abruptly short-apiculate, jointed with the short, rather slender style; stigmas 3, dull reddish-brown, slender.

TYPE LOCALITY: "California, Yosemite Valley, alt. 6000 feet, *Brewer 1636; Bolander 6221.*"
DISTRIBUTION: Mountains of California; Sierra Nevada from Tuolumne to Tulare counties and in the San Jacinto mountains. (Specimens examined showing above range.)
ILLUSTRATIONS: Erythea **8**: 84. *f. 45;* Abrams, Ill. Fl. Pacif. St. *f. 830;* Jepson Man. Fl. Pl. Calif. *f. 203;* Jepson, Fl. Calif. 239. *f. 36, a–c.*
EDITORIAL NOTE: In his manuscript the author used *C. yosemitana* as the name of this species, regarding *C. Sartwelliana* as a homonym of *C. Sartwellii* Dewey, 1842.

388. **Carex vestita** Willd. Sp. Pl. **4**: 263. 1805.

Loxotrema vestita Raf. Good Book 25. 1840. (Based on *Carex vestita* Willd.)
Carex vestita var. *Kennedyi* Fernald, Rhodora **2**: 170. 1900. (Type from Wilmington, Massachusetts.)
Carex vestita f. *Kennedyi* "Fernald" Kükenth. in Engler, Pflanzenreich **4**[20]: 744. 1909. (Based on *C. vestita* var. *Kennedyi* Fernald.)

Loosely cespitose and strongly stoloniferous, the stolons long, horizontal, rather slender, tough, scaly, the clumps small, the culms 3–8 dm. high, slender, strict, sharply triangular, very rough or smoothish above, aphyllopodic, strongly exceeding the leaves, reddish-tinged at base, the lower sheaths breaking and becoming filamentose; sterile shoots elongate, phyllopodic; leaves with well-developed blades 2–4 to a fertile culm, on lower third, not septate-nodulose, the blades 0.5–2 dm. long on the fertile culms, up to 2–3 dm. on the sterile, 2–5 mm. wide, light-green, smooth, thin, flat with revolute margins or channeled at base, rough on both surfaces towards apex, the sheaths tight, yellowish-tinged and red-dotted ventrally, not breaking and not becoming filamentose, the ligule about as long as wide; staminate spike usually solitary (occasionally with an additional smaller one at base), slender, erect, cylindric, clavate, sessile or nearly so, 1–5 cm. long, 3–5 mm. wide, the scales oblong-obovate, obtuse, reddish-brown with white hyaline apex and margins and light-colored center, not ciliate; pistillate spikes 1–3, often staminate at apex, approximate or the lowest more or less strongly remote, erect, sessile or very nearly so, oblong or short-oblong-cylindric, 6–30 mm. long, 5–8 mm. wide, densely flowered, the perigynia 25–50, appressed-ascending in several to many rows; lowest bract leaflet-like, 4 cm. or less long, not sheathing, much shorter than culm, the upper bracts much reduced; scales ovate-lanceolate, acuminate, slightly ciliate, narrower and usually somewhat shorter than the perigynia, purplish-brown with green 3-nerved center and hyaline margins; perigynia obovoid, obtusely triangular in cross-section, not inflated, 3–4 mm. long, 1.75 mm. wide, 2-keeled and strongly many-ribbed, strongly white-hirsute, the pubescence largely concealing the nerves, olive-green or yellowish-green, subcoriaceous, tapering at base and substipitate, abruptly tapering into the short-conic strongly hyaline-tipped beak, scarcely 1 mm. long, the orifice oblique, becoming deeply bidentate; achenes obovoid, closely enveloped, triangular with blunt angles and slightly concave sides, 2.5 mm. long, 1.5 mm. wide, sessile, yellowish, granular, abruptly (often bent-) apiculate, jointed with the slender, deciduous style; stigmas 3, slender, long, dark-reddish-brown.

TYPE LOCALITY: "Habitat in America boreali" (Pennsylvania).

DISTRIBUTION: Open dry sandy woods and thickets, acid soils, southern Maine to eastern New York and Pennsylvania, and southward to District of Columbia. (Specimens examined from Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, District of Columbia.) Erroneously attributed to Georgia by Pursh and subsequent authors following him.

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 708;* ed. 2. *f. 1066;* Rob. & Fern. Man. *f. 521;* Schkuhr, Riedgr. *pl. Bbbb, f. 182;* Rep. N. J. Mus. **1910:** *pl. 25, f. 7;* Boott, Ill. Carex 49. *pl. 131.*

55. **Fecundae** Kükenth. in Engler, Pflanzenreich **4**[20]: 401. 1909. "POLYSTACHYAE Tuckerm." L. H. Bailey, Proc. Am. Acad. **22:** 95. 1886. TRICHOCARPAE Holm, Am. Jour. Sci. IV. **16:** 462, in small part. 1903. VIGNEANDRA PICHINCHENSES C. B. Clarke, Kew Bull. Add. Ser. **8:** 139. 1908.

Culms stout, sharply triangular with concave sides, brownish or purplish at base; leaf-blades broad, coriaceous; spikes numerous, androgynous, simple or the lower branched, or paniculate, in which case the terminal branch is longer than the others, mostly 2–6 together, or some in the inflorescence single, densely flowered, the lower exsert-peduncled, sometimes nodding; lower bracts short-sheathing to nearly sheathless; perigynia membranaceous, lanceolate or elliptic to obovoid or broadly obovoid, smooth, contracted into a short or longish beak, the orifice bidentate or bidentulate, sometimes ciliate, rarely nearly beakless; achene filling or nearly filling perigynium-body, triangular with sides concave above or lenticular, apiculate, jointed with the slender style, often strongly constricted in the middle; stigmas 3 or 2.

A group represented by a number of species in the mountains of tropical South America and extending north into Mexico, where it is also rather well developed.

Achenes strongly constricted in the middle; perigynia obtusely triangular, not oblique, the beak straight.
- Perigynia obovoid or broadly obovoid, 2–2.5 mm. long, 1.5–2 mm. wide, prominently 2-keeled, otherwise nerveless; stigmas short.
  - Lower sheaths cinnamon-brown; spikes all androgynous; perigynia obovoid, strongly purple-resinous, the beak bidentate; achenes oblong-obovoid; spikes 3–6 cm. long. 389. *C. tuberculata.*
  - Lower sheaths reddish-purple; upper spikes staminate or nearly so; perigynia broadly obovoid, obscurely resinous, the beak shallowly bidentate; achenes obovoid; spikes 3–10 cm. long. 390. *C. Ehrenbergiana.*
- Perigynia elliptic-obovoid, 3.5 mm. long, 1.5 mm. wide, finely several-nerved as well as strongly 2-keeled; stigmas long. 391. *C. psilocarpa.*

Achenes not constricted in the middle; perigynia compressed-triangular, oblique, the beak somewhat excurved; perigynia nerved (except in *C. Cortesii*) as well as 2-keeled.
- Achenes triangular; stigmas 3; perigynia not hispid-serrulate.
  - Achenes yellowish-brown, oblong-elliptic.
    - Lower sheaths cinnamon-brown; spikes linear-cylindric, 5–15 cm. long; perigynia nerved as well as 2-keeled. 392. *C. chordalis.*
    - Lower sheaths dull-purplish-brown; spikes 2.5–7 cm. long; perigynia 2-keeled, otherwise nerveless or nearly so. 393. *C. Cortesii.*
  - Achenes purplish-black, shining, oblong-obovoid; lower sheaths purplish-brown.
    - Spikes 2.5–7 cm. long; pistillate scales reddish-brown; beak of perigynium with very short teeth. 394. *C. melanosperma.*
    - Spikes 3–12 cm. long; pistillate scales purplish-black; beak of perigynium with slender teeth 0.5 mm. long. 395. *C. Donnell-Smithii.*
- Achenes lenticular; stigmas 2; perigynia hispid-serrulate above. 396. *C. Lemanniana.*

389. **Carex tuberculata** Liebm. Danske Vid. Selsk. Skr. V. **2:** 270. 1850.

Cespitose, the rootstocks stout, oblique, elongate, the culms stout, stiff, erect, 6–9 dm. high, sharply triangular with slightly concave sides, roughish above, about equaled by the leaves, phyllopodic, but very lowest leaves bladeless, cinnamon-brown-tinged at base; leaves on lower third of culm, obscurely very sparingly septate-nodulose, the blades light-green or somewhat glaucous-green, coriaceous, strongly many-striate, channeled above, sharply keeled below, and with very strongly revolute margins and prominent midrib, usually 2.5–5 dm. long, 4–8 mm. wide, long-attenuate and much roughened towards the apex, the sheaths concave at mouth, very thin ventrally and yellowish-brown-tinged and red-dotted, breaking and sparingly

filamentose, the ligule nearly as long as wide; spikes 7–16, androgynous, the staminate part conspicuous, not widely separate, all but the uppermost in pairs or threes, slender, drooping or slightly roughened, spreading on very slender peduncles, shorter or the lower longer than the spikes, the spikes linear-cylindric, 3–6 cm. long, 4–5 mm. wide, densely flowered above, more loosely at base, the perigynia 25–75, spreading-ascending in several rows; lowest bract leaf-like, very short-sheathing, equaling or exceeding culm; upper bracts much reduced; staminate scales oblong-obovate, mucronate or obtuse, purplish-brown with lighter center and whitish-hyaline apex and margins; pistillate scales ovate, appressed, slightly keeled, the lower short-cuspidate, the upper acutish, somewhat shorter and narrower than the perigynia, purplish-brown with 3-nerved center and narrow white-hyaline margins; perigynia obovoid, obtusely inflated, triangular in cross-section, 2–2.5 mm. long, 1.5 mm. wide, membranaceous, pale-green, strongly purple-resinous (sometimes appearing as small tubercles on the angles), smooth, prominently 2-keeled, otherwise nerveless, round-tapering at base, sessile or very nearly so, abruptly contracted into a short, straight, bidentate beak scarcely 0.5 mm. long, the orifice hyaline; achenes not closely enveloped but nearly filling perigynium-body, oblong-obovoid, obtusely triangular with prominent angles and convex sides above, constricted in the middle, 1.5–2 mm. long, 1.25–1.5 mm. wide, yellowish, or in age dark-colored, somewhat resinous, granular, sessile or nearly so, abruptly somewhat bent-short-apiculate, jointed with the straight slender style; stigmas 3, slender, short, dark-colored.

TYPE LOCALITY: Chinantla, Puebla, Mexico; alt. 7000 feet (*Liebmann 563*).
DISTRIBUTION: Known only from the type collection.
NOTE: The above description is made up from a photograph of the type specimen supplied by Carl Christensen of Copenhagen, from fragments of the type, and from the descriptions of Liebmann and Kükenthal.

390. **Carex Ehrenbergiana** Böck. Linnaea 41: 175. 1877.

Carex tuberculata var. *Ehrenbergiana* Kükenth. in Engler, Pflanzenreich 4[20]: 408. 1909. (Based on *C. Ehrenbergiana* Böck.)

Rootstock stout, the culms stout, stiff and erect, 6–9 dm. high, sharply triangular with slightly concave sides, smooth or nearly so, exceeding the leaves, strongly phyllopodic, reddish-purple at base; leaves with well-developed blades 6–12 to a fertile culm, on lower third, obscurely sparingly septate-nodulose, the blades light-green or somewhat glaucous-green, coriaceous, strongly many-striate, channeled above, sharply keeled below and with strongly revolute margins and prominent midrib, usually 2.5–5 dm. long, 4–8 mm. wide, long-attenuate, much roughened towards the apex, the sheaths concave at mouth, very thin ventrally and yellowish-brown-tinged and red-dotted, breaking but little or not at all filamentose, the ligule nearly as long as wide; spikes 15–18, the upper 3 or 4 staminate or with a few perigynia, the middle ones androgynous (the staminate part short), the lower pistillate, not widely separate, all but the uppermost in pairs or threes, slender, drooping or spreading on slightly roughish, very slender peduncles shorter or sometimes longer than the spikes, the spikes linear-cylindric, 3–10 cm. long, 5 mm. wide, densely flowered above, more loosely at base, the perigynia 25–75, ascending in several rows; lowest bract leaf-like, short-sheathing, purplish-tinged at base, equaling or exceeding culm; upper bracts much reduced; staminate scales oblong-obovate, mucronate or obtuse, purplish-brown with lighter center and whitish-hyaline apex and margins; pistillate scales ovate, appressed, slightly keeled, the lower cuspidate and exceeding perigynia, the upper acute and sometimes shorter, narrower than perigynia, purplish-brown with lighter 3-nerved center, prominent especially at apex, and narrow hyaline margins; perigynia broadly obovoid, inflated-triangular in cross-section, 2–2.5 mm. long, nearly 2 mm. wide, membranaceous, pale-green, minutely purple-dotted, obscurely resinous, smooth, prominently 2-keeled, otherwise nerveless, round-tapering at base, sessile or very nearly so, abruptly contracted into a short conic beak scarcely 0.5 mm. long, the orifice hyaline, shallowly bidentate; achenes obovoid, obtusely triangular with prominent angles and convex sides above, not closely enveloped but nearly filling perigynium-body, 1.5–2 mm. long, 1.25–1.5 mm. wide, yellowish, sessile, strongly

constricted and bent in the middle, abruptly apiculate, jointed with the short, straight, slender style; stigmas 3, slender, short, dark-colored.

TYPE LOCALITY: Mexico (*Ehrenberg 855*).
DISTRIBUTION: Mountains of middle Mexico. (Specimens examined from Hidalgo.)

391. **Carex psilocarpa** Steud. Syn. Cyp. 195. 1855.

Carex maculata Liebm. Danske Vid. Selsk. Skr. V. 2: 268. 1850. (Type from State of Mexico.) Not *C. maculata* Boott, 1846.
Carex consors C. B. Clarke, Kew Bull. Add. Ser. 8: 76. 1908. (Type from Salazar, Mexico.)

Rootstocks stout, horizontal, the culms stout, stiff, and erect, 5–9 dm. high, strongly phyllopodic, reddish-purple at base, very sharply triangular with concave sides, roughened above, exceeding the leaves; leaves with well-developed blades 8–15 to a fertile culm, mostly clustered above base, sparingly septate-nodulose, the blades somewhat glaucous and coriaceous, sharply keeled below and with strongly revolute margins and prominent midrib, usually 3–6 dm. long, 6–10 mm. wide, long-attenuate, much roughened towards the apex, the sheaths concave at mouth, very thin ventrally and yellowish-brown-tinged and red-dotted, breaking but scarcely filamentose, the ligule nearly as long as wide; spikes 8–12, androgynous, all approximate or little separate, all but the uppermost in pairs, flexuous and drooping or the upper spreading on rough, slender peduncles, shorter to much longer than the spikes, the spikes linear-cylindric, the well-developed ones 2–12 cm. long, 4–6 mm. wide, the upper one fifth to one sixth staminate, the remainder with 25–75 ascending, or at length spreading perigynia in several rows, closely arranged above, loosely towards base; lower bracts leaflet-like, scarcely sheathing, strongly purple-tinged at base, equaling or shorter than the inflorescence; upper bracts much reduced; staminate scales oblong-obovate, obtuse, purplish-brown with lighter center and whitish-hyaline apex and margins; pistillate scales oval-ovate, the lower cuspidate and exceeding perigynia, the upper acute and shorter, somewhat narrower than the perigynia, purplish-brown with lighter 3-nerved center and narrow hyaline margins; perigynia elliptic-ovoid, rather obtusely triangular, membranaceous, slightly inflated, greenish-straw-colored, strongly 2-keeled and finely several-nerved, rather sparingly purplish-red-dotted, glabrous, 3.5–4 mm. long, 1.5 mm. wide, tapering to a substipitate base, abruptly short-beaked, the beak 0.5 mm. long, minutely notched and somewhat ciliate at apex, dark-tinged; achenes obovoid, 2 mm. long, 1.25 mm. wide, closely enveloped, triangular with conspicuous rounded angles and convex sides above, constricted in the middle, brownish-black, sessile, abruptly bent-apiculate, jointed with the curving slender style of its own length; stigmas 3, slender, long.

TYPE LOCALITY (of *C. maculata* Liebm. on which *C. psilocarpa* Steud. is based): "Orizaba," South Mexico, at 8000 to 10,000 feet (*Liebmann*).
DISTRIBUTION: Mountains, Mexico (State of), Puebla and Hidalgo. (Specimens examined from state of Mexico and Hidalgo.)
NOTE: The name as given originally was misprinted as "*spilocarpa.*" Steudel's description is copied from the description of Liebmann, with an occasional word or words omitted.

392. **Carex chordalis** Liebm. Danske Vid. Selsk. Skr. V. 2: 269. 1850.

Carex Jamesonii var. β Boott, Ill. Carex 109. *pl. 335.* 1862. (Type from Valleseta, Colombia.)
Carex Jamesonii var. *gracilis* L. H. Bailey, Bot. Gaz. 13: 88. 1888. (Based on *C. Jamesonii* var. β Boott.)
Carex Jamesonii var. *chordalis* Kükenth. in Engler, Pflanzenreich 4[20]: 409. 1909. (Based on *C. chordalis* Liebm.)

Cespitose, the culms stout, stiff, erect, 6–12 dm. high, sharply triangular with concave sides, slightly roughened above, exceeding the leaves, phyllopodic, cinnamon-brown-tinged at base, the basal sheaths not breaking and becoming filamentose, or but little so; leaves with well-developed blades 6–10 to a fertile culm, mostly clustered above the base, sparingly septate-nodulose, the blades coriaceous, glaucous-green, sharply keeled and channeled below, flat above, usually 3–6 dm. long, 5–10 mm. wide, the margins strongly revolute, long-attenuate, much roughened towards the apex, the sheaths very thin ventrally and yellowish-brown-

tinged and red-dotted, the ligule much longer than wide; spikes 15–25, androgynous, the inflorescence 2–4 dm. long, the lower spikes mostly in twos to fours, the upper single, erect to drooping, on unequal, long, slender, rough peduncles, mostly shorter than the spikes, the spikes linear-cylindric, flexuous, the well-developed ones 5–15 cm. long, 5–7 mm. wide, closely flowered above, more loosely towards base, the upper one fifth to one sixth staminate, the perigynia 50–200, spreading-ascending in few rows; lower bracts leaflet-like, scarcely sheathing, longer or shorter than the inflorescence; upper bracts much reduced; pistillate scales oblong-lanceolate, shortly rough-awned, dark-purplish-tinged with 3-nerved green center and very narrow hyaline margins, as wide as and from longer to shorter than the perigynia; staminate scales similar, but lighter in color; perigynia lanceolate, compressed-triangular, not inflated, 3.5–4.5 mm. long, 1 mm. wide, oblique, slightly excurved, membranaceous, glabrous, light-green or yellowish-green, 2-keeled and slenderly several-nerved, round-tapering at base, substipitate, tapering into the smooth, hyaline-tipped, bidentate beak 1 mm. long, the teeth short, erect, hispidulous within; achenes oblong-elliptic, 2 mm. long, 0.75 mm. wide, closely enveloped in lower part of perigynium-body, triangular with convex sides above, not constricted in middle, yellowish-brown, substipitate, apiculate, jointed with the slender, more or less flexuous style; stigmas 3, brownish, slender, short.

TYPE LOCALITY: Hacienda de Castresana, Oaxaca, at 7500 feet alt. (*Liebmann, June 1*).
DISTRIBUTION: Southern Mexico to Colombia. (Specimens examined from Vera Cruz.)
ILLUSTRATION: Boott, Ill. Carex 109. *pl. 335.*

393. **Carex Cortesii** Liebm. Danske Vid. Selsk. Skr. V. **2**: 268. 1850.

Carex Galeottiana C. Meyer; Galeotti, Bull. Acad. Brux. **9**[2]: 248, name only. 1842. (Type from Orizaba, Veracruz, Mexico.)
"*Carex Jamesonii* Boott" L. H. Bailey, Proc. Am. Acad. **22**: 98. 1886.
"*Carex pinchinchensis* H. B. K." Böck. Linnaea **39**: 147. 1875. (As to plant of Gollmer.)
"*Carex viridis* Jungh." Böck. Linnaea **40**: 330, in part. 1876.

Cespitose, the rootstocks short, stout, the culms stout, erect, 6–12 dm. high, sharply triangular with concave sides, smooth or nearly so, exceeding the leaves, phyllopodic, dull-purplish-brown-tinged at base, the basal sheaths breaking and becoming more or less filamentose; leaves with well-developed blades 7–15 to a fertile culm, sparingly septate-nodulose, the lower clustered, the blades glaucous-green, coriaceous, stiff, strongly keeled and channeled towards the base, flat above, the margins strongly revolute, usually 3–6 dm. long, 3–6 mm. wide, long-attenuate, roughened towards the apex, the sheaths thin-hyaline and yellowish-brown-tinged and red-dotted ventrally, the ligule longer than wide; spikes 15–25, androgynous, the inflorescence 1–2 dm. long, the lower spikes often in twos, the upper single, drooping on unequal, long, slender, rough peduncles mostly shorter than the spikes, the spikes linear-cylindric, somewhat flexuose, the well-developed ones 2.5–7 cm. long, 4–6 mm. wide, closely flowered or somewhat loosely at base, the upper one fourth or one fifth staminate, the perigynia 30–100, spreading-ascending in few rows; lower bracts leaflet-like, very short-sheathing, longer or shorter than the inflorescence; upper bracts much reduced; pistillate scales lanceolate or ovate-lanceolate, shortly rough-awned or cuspidate, dark-purple with 3-nerved greenish center and very narrow hyaline margins, narrower and somewhat shorter than the perigynia; staminate scales similar, but lighter in color; perigynia broadly oblanceolate, compressed-triangular, not inflated, 3 mm. long, 1 mm. wide, oblique, slightly excurved, membranaceous, light-green or yellowish-green, red-dotted, 2-ribbed, otherwise nerveless or nearly so, rounded at base, substipitate, tapering into the smooth, hyaline-tipped, bidentate beak 1 mm. long, the teeth short, erect, hispidulous within; achenes oblong-obovoid, 2 mm. long, 0.75 mm. wide, closely enveloped, nearly filling perigynium-body, triangular with convex sides above, not constricted in middle, yellowish-brown, substipitate, apiculate, jointed with the slender flexuose style; stigmas 3, brownish, slender, short.

TYPE LOCALITY: Cerro de Sempoaltepec, Oaxaca, at 10,000 feet (*Liebmann*).
DISTRIBUTION: Mountains of southern Mexico. (Specimens examined from Mt. Sempoaltepec, Oaxaca.)
NOTE: *Carex Jamesonii* Boott, of South America, has achenes strongly constricted in middle, bracts with a conspicuous black band at base, the lowest many times exceeding the culm, and scales markedly longer than the perigynia.

394. **Carex melanosperma** Liebm. Danske Vid. Selsk. Skr. V. 2: 269. 1850.

Carex Jamesonii var. *melanosperma* Kükenth. in Engler, Pflanzenreich 4[20]: 409. 1909. (Based on *C. melanosperma* Liebm.)

Cespitose, the rootstocks short, stout, the culms stout, erect, 6–12 dm. high, sharply triangular with concave sides and smooth angles, exceeding the leaves, phyllopodic, purplish-brown-tinged at base, the lower sheaths breaking and becoming more or less filamentose; leaves with well-developed blades 7–15 to a fertile culm, sparingly septate-nodulose, the lower clustered, the blades glaucous-green, coriaceous, stiff, strongly keeled and channeled towards base, flat above, the margins strongly revolute, usually 3–6 dm. long, 4–8 mm. wide, long-attenuate, roughened towards the apex, the sheaths thin-hyaline and yellowish-brown-tinged and red-dotted ventrally, the ligule longer than wide; inflorescence 1–2 dm. long, the spikes 15–25, androgynous, the lower in twos to fours, the upper solitary or in pairs, drooping on unequal slender rough peduncles, mostly shorter than the spikes, the spikes linear-cylindric, somewhat flexuose, the well-developed ones 2.5–7 cm. long, 4–6 mm. wide, closely flowered or somewhat loosely at base, the upper one fourth or one fifth staminate, the perigynia 30–100, spreading-ascending in few rows; lower bracts leaflet-like, very short-sheathing, strongly exceeding the inflorescence; upper bracts much reduced; pistillate scales lanceolate or ovate-lanceolate, shortly rough-awned or cuspidate, reddish-brown with 3-nerved greenish center and nearly obsolete hyaline margins, somewhat narrower than and about length of perigynia; staminate scales similar but lighter in color; perigynia elliptic-ovoid, somewhat flattened, suborbicular-triangular in cross-section, not inflated, 2.5 mm. long, 1.25 mm. wide, slightly excurved and oblique, membranaceous, smooth, dull-green or yellowish-green, red-dotted, 2-ribbed and strongly few-nerved, rounded at base, sessile or nearly so, contracted into the smooth, hyaline-tipped shallowly bidentate beak 0.5 mm. long, the teeth very short, erect, smooth within; achenes oblong-obovoid, 1.75 mm. long, 1 mm. wide, very closely enveloped, nearly filling perigynium-body, triangular with convex sides above, purplish-black, shining, slightly puncticulate, not constricted in middle, substipitate, very slightly apiculate, jointed with the slender style; stigmas 3, slender, brownish, short.

TYPE LOCALITY: Between Huitamalco and Tiuzultan, Puebla, at 5000 feet (*Liebmann 938*, May 1).

DISTRIBUTION: Known only from type locality. (Specimens examined from Orizaba, Veracruz.)

395. **Carex Donnell-Smithii** L. H. Bailey, Mem. Torrey Club 1: 56. 1889.

"*Carex viridis* Jungh." Böck. Linnaea **40**: 330, in part. 1876.
Carex Pittieri Böck. Allg. Bot. Zeits. **2**: 190. 1896. (Type from Costa Rica.)
"*Carex Jamesonii* Boott" C. B. Clarke, Contr. U. S. Nat. Herb. **10**: 469. 1908.
Carex Jovis C. B. Clarke, Contr. U. S. Nat. Herb. **10**: 470. 1908. (Type from Costa Rica.)

Cespitose, the culms stout, erect, 3–10 dm. high, sharply triangular with concave sides, more or less roughened above, usually exceeding the leaves, phyllopodic, strongly purplish-red-tinged at base, the lower sheaths breaking and becoming prominently filamentose; leaves with well-developed blades 7–15 to a fertile culm, the lower clustered, the blades glaucous-green, coriaceous, stiff, flat with revolute margins, keeled and channeled towards base, usually 3–6 dm. long, 3–10 mm. wide, long-attenuate, roughened towards the apex, the sheaths thin, hyaline and red-dotted ventrally, the ligule longer than wide; inflorescence compound, 2–6 dm. long, the lower primary branches usually in twos to fours, drooping or weakly erect, on rough filiform peduncles, unequal in length, usually shorter than the branches, the lower branches with several to many spikes, the upper simple; spikes androgynous, very numerous, very narrowly linear, cylindric, elongate, 3–12 cm. long, 3.5–5 mm. wide, containing 20–50 loosely disposed ascending perigynia below in few rows, the upper one fourth to one sixth staminate; lower bracts leaf-like, short-sheathing, from shorter than to exceeding inflorescence, the upper much reduced; pistillate scales lanceolate-ovate, strongly hispid-awned to cuspidate, purplish-

black with lighter 1–3-nerved midrib, and slightly hyaline apex and upper margins, as wide as perigynia at base and from slightly shorter to slightly longer; staminate scales similar; perigynia lanceolate, scarcely inflated, compressed-triangular in cross-section, oblique and frequently bent in middle, 3.5–4 mm. long, 1.5 mm. wide, membranaceous, puncticulate, dull-green, often purplish-black-tinged, 2-ribbed and strongly few-nerved, tapering to a short-stipitate base, abruptly beaked, the beak excurved, oblique, slender, slightly rough, 1–1.5 mm. long, purplish-black-tinged, bidentate, the teeth slender, erect, stiffish, scabrous within, 0.5 mm. long; achenes oblong-obovoid, 2–2.5 mm. long, 1–1.25 mm. wide, closely enveloped, filling body of perigynium, triangular with strongly convex sides above, purplish-black, shining, not constricted in middle, substipitate, short-apiculate, jointed with the slender more or less flexuose style; stigmas 3, dark-brown, slender, short.

TYPE LOCALITY: Pansamala, Alta Verapaz, Guatemala (*H. von Türckheim 659*).
DISTRIBUTION: Guatemala and Costa Rica. (Specimens examined from Guatemala and Costa Rica.)

396. **Carex Lemanniana** Boott, Trans. Linn. Soc. **20**: 121. 1846.

'*Carex pichinchensis* H. B. K." Böck. Linnaea **39**: 147, in part. 1875.
Carex Lemanniana var. *simplex* Kükenth. in Engler, Pflanzenreich **4**[20]: 405. 1909. (Type from Costa Rica.)

Cespitose and short-stoloniferous, the rootstocks stout, woody, the stolons ascending, the culms 2.5–6 dm. high, stiff, erect, sharply triangular with concave sides and more or less roughened above, exceeding or shorter than the leaves, phyllopodic, dull-brownish at base, the lower sheaths not breaking and becoming filamentose; leaves with well-developed blades 7–15 to a fertile culm, clustered, the blades glaucous-green, coriaceous, stiff, channeled above and keeled towards the base below, the margins revolute, usually 1–4 dm. long, 2.5–8 mm. wide, long-attenuate, roughened towards the apex, the sheaths thin, yellowish-brown-tinged and red-dotted ventrally, concave at mouth, the ligule wider than long; inflorescence not or but sparingly compound, 1–2.5 dm. long, the spikes 4–20, simple or the lower more or less compound, weakly erect or drooping on nearly smooth, very slender peduncles usually shorter than the spikes; spikes androgynous, linear-cylindric, 2–8 cm. long, 3.5–5 mm. wide, containing 20–40 rather closely disposed (or more loosely towards base), ascending perigynia below in several rows, the upper one fourth to one sixth staminate; lower bracts leaf-like, rather short-sheathing, usually exceeding inflorescence, the upper much reduced; pistillate scales ovate-lanceolate, short-rough-awned to cuspidate, purplish-black with lighter 1–3-nerved center and narrow hyaline upper margins and apex, wider and longer than the perigynia; staminate scales similar, duller; perigynia oblong-obovate, not inflated, plano-convex, sharp-edged, 2.5 mm. long, 1 mm. wide, straight, membranaceous, puncticulate, straw-colored and strongly purplish-splashed, 2-ribbed (the marginal), obscurely striate ventrally, strongly several-nerved dorsally, hispid-serrulate above, rounded at base, slightly stipitate, abruptly beaked, the beak straight, 0.5 mm. long, shallowly bidentate, purplish-tinged above, the orifice hyaline, the teeth very short, stiffish, scabrous within, somewhat spreading; achenes lenticular, oblong-ovate, 1.75 mm. long, 0.85 mm. wide, closely enveloped, filling body of perigynium, brown, dull, not constricted in middle, sessile or nearly so, abruptly short-apiculate, jointed with the short slender style; stigmas 2, dull-brown, slender, short.

TYPE LOCALITY: "Hab. in locis humidis montis ignivomi Cotopaxi, Columbiae, Amer. Merid. *Hartweg, no. 1446*, Herb. C. M. Lemann; Columbia *Dr. Jameson 220*, Herb. Lemann."
DISTRIBUTION: Costa Rica to Columbia and Ecuador. (Specimens examined from Costa Rica and Panama.)
ILLUSTRATION: Boott, Ill. Carex 72. *pl. 198* (left hand only).
NOTE: The Costa Rica records of *Carex pichinchensis* H. B. K. in C. B. Clarke's publication (Contr. U. S. Nat. Herb. **10**: 469. 1909) are based on this species.

56. **Anomalae** Carey, in A. Gray, Man. 557. 1848; L. H. Bailey, Proc. Am. Acad. **22**: 72. 1886; Mackenzie, in Rydb. Fl. Rocky Mts. 135. 1917; Mackenzie, Erythea **8**: 66. 1922. TUMIDAE Kükenth. in Engler, Pflanzenreich **4**[20]: 611. 1909. (Not TUMIDAE Meinsh. Acta

Hort. Petrop. **18**: 376. 1901.) The species are referred to the HYMENOCHLAENAE Drejer by Holm (Am. Jour. Sci. IV. **16**: 462, 463. 1903).

Culms stout, leafy; leaf-blades broad, flat, not hairy, not septate-nodulose; terminal spike staminate, linear; lateral spikes pistillate, linear-cylindric, scattered, closely many-flowered or very many-flowered in several rows; bracts leaf-like, sheathless or the lowest little sheathing; perigynia ascending or in age spreading, obovoid, small, 2.5–4 mm. long, membranaceous, dull-green or brownish-green, 2-ribbed and nerveless or nerved, tapering or rounded at the base, obtusely triangular, slightly inflated, abruptly beaked, the beak conic, obliquely cut, becoming bidentulate or bidentate; achenes triangular, short-apiculate, more or less closely enveloped, the style straight, slender, jointed with the achene, at length withering, its base not enlarged; stigmas 3.

A group strongly developed in eastern Asia, where it is represented by numerous species. Three species are known from Australasia; and two from the temperate parts of North America, one from the eastern part, and the other from the western part. The group is not known from Europe, Africa, or South America.

Perigynia strongly scabrous-papillate, 2-ribbed and strongly several-nerved; leaf-blades very scabrous above; culms brownish at base; achenes straight-apiculate. 397. *C. scabrata.*

Perigynia smooth or nearly so, somewhat rugose, 2-ribbed, otherwise nerveless; leaf-blades smooth above (except on the veins towards the tip); culms more or less strongly purplish-tinged towards base; achenes bent-apiculate. 398. *C. amplifolia.*

397. **Carex scabrata** Schw. Ann. Lyc. N. Y. **1**: 69. 1824.

Loosely cespitose and freely stoloniferous, the stolons very long, horizontal, tough, stoutish, brownish, scaly, the clumps medium-sized, the culms 2.5–9 dm. high, erect, stiffish, sharply winged, triangular with concave sides, exceeded by leaves, very rough above, obscurely phyllopodic, brownish at base, the dried-up leaves of the previous year conspicuous; sterile shoots prominent, phyllopodic; leaves with well-developed blades about 4 to a fertile culm, regularly disposed, sparingly septate-nodulose, the blades flat, 1–4 dm. long, 5–18 mm. wide, deep-green, thin, flaccid, very rough on the margins and very scabrous on the upper surface, the two mid-lateral nerves prominent above, the sheaths smooth dorsally, very thin and somewhat yellowish-tinged ventrally, deeply concave at mouth, the ligule conspicuous, longer than wide; staminate spike solitary, linear, from little to strongly peduncled, 1.5–4 cm. long, 3 mm. wide, the scales oblong-ovate, obtusish or acute, slightly ciliate, reddish-brown with lighter or greenish 3-nerved center and narrow hyaline margins; pistillate spikes 3–8, usually 4 or 5, erect, the upper contiguous, the lower often strongly separate, the lowest on a long, slender, rough peduncle often several times the length of the spike, the upper on shorter peduncles or nearly sessile, the spikes linear-oblong, 1.2–6 cm. long, 5–8 mm. wide, closely flowered or somewhat loosely at base, the perigynia spreading-ascending in several rows; lowest bract leaf-like, not sheathing, exceeding inflorescence, the upper reduced; scales ovate or lanceolate, ciliate, acute to short-awned, narrower and usually shorter than the perigynia, light-reddish-brown with strongly 3-nerved green center; perigynia dull-green, strongly scabrous-papillate, membranaceous, 2-ribbed and strongly several-nerved, 2.5–4 mm. long, the body obovoid, not or but little inflated, obtusely triangular in cross-section, 1.5–2 mm. wide, strongly tapering at base, substipitate, abruptly contracted into a rough, conic, more or less excurved beak nearly its own length, the orifice hyaline, obliquely cut, at length bidentulate or bidentate; achenes small, broadly obovoid, 1.5 mm. long, 1 mm. wide, rather closely enveloped, triangular with concave sides and prominent thickened angles, brown, papillate, nearly sessile, shortly straight-apiculate, jointed with the slender style; stigmas 3, slender, short, dull-reddish-brown.

TYPE LOCALITY: "New Eng." and more specifically "In various parts of Berkshire county, Massachusetts" (*Dewey*).

DISTRIBUTION: Springy banks in woodlands, Nova Scotia and eastern Quebec to Ontario and Michigan, and southward mostly in the mountains to South Carolina and Tennessee. (Specimens examined from Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsyl-

vania, Delaware, Virginia, Ohio, Michigan, Kentucky, West Virginia, North Carolina, South Carolina, Tennessee.)

ILLUSTRATIONS: Ann. Lyc. N. Y. 1: *pl. 26, f. 2;* Britt. & Brown, Ill. Fl. *f. 707;* ed. 2. *f. 1034;* Rob. & Fern. Man. *f. 518;* Boott, Ill. Carex 158. *pl. 517;* Am. Jour. Sci. 11: *pl. K, f. 32.*

398. **Carex amplifolia** Boott, in Hook. Fl. Bor. Am. 2: 228. *pl. 226.* 1839.

Cespitose and stoloniferous, the stolons long, horizontal, stout, tough, blackish, scaly, the culms stout, erect, 5–10 dm. high, sharply winged-triangular, rough on the angles above, exceeded by the bracts and often by the upper leaves, more or less strongly purplish-tinged towards base, phyllopodic, the dried-up leaves of the previous year conspicuous, sterile shoots prominent, phyllopodic; leaves with well-developed blades 6–12 to a fertile culm, the lower clustered, the upper regularly disposed, septate-nodulose, the blades flat, thin, flaccid, light-green or glaucous-green, usually 1.5–4 dm. long, 8–18 mm. wide, rough on the margins towards the apex, smooth above except on the veins towards the tip, the two mid-lateral nerves very prominent above, the sheaths more or less hispidulous dorsally, very thin, whitish-hyaline and usually brownish-tinged opposite the blades, the ligule conspicuous, much longer than wide; staminate spike solitary, linear, short-peduncled, 4–9 cm. long, 3–5 mm. wide, the scales oblong-obovate, obtuse, mucronate, or strongly awned, brown with lighter center and conspicuous hyaline apex; pistillate spikes 3–6, usually 4 or 5, the upper approximate, the lower from little to strongly separate, erect, short-peduncled or the upper nearly sessile, the peduncles rough, the spikes linear-cylindric, 3.5–14 cm. long, 6–7 mm. wide, closely flowered above, more loosely below and containing very many spreading perigynia in few to several rows; lower bract leaf-like, exceeding inflorescence, little sheathing, the uppermost much reduced; scales varying from lanceolate and acuminate or awned (the lower) to ovate and acute (the upper), often mucronate, sometimes strongly awned, narrower and all except the lower shorter than the perigynia, brownish-purple with lighter 3-nerved center and hyaline apex; perigynia 3 mm. long, the body ovoid, not or but little inflated, obtusely triangular in cross-section, 1.5 mm. wide, brownish-green, smooth or nearly so, somewhat rugose, membranaceous, 2-ribbed, otherwise nerveless, rounded and substipitate at base, abruptly contracted into a conic, more or less excurved beak of nearly its own length, the orifice oblique, hyaline, becoming bidentulate or bidentate; achenes small, broadly obovoid, 1.5 mm. long, 1 mm. wide, rather closely enveloped, triangular with slightly concave sides and thickened angles, brown, granular, substipitate, shortly bent-apiculate, jointed with the slender style; stigmas 3, slender, dull-reddish-brown.

TYPE LOCALITY: "Hab. marshy places. Columbia River. *Douglas.*"

DISTRIBUTION: Wet soil, Idaho to British Columbia, and southward to San Mateo and Tulare counties, California. (Specimens examined from Idaho, British Columbia, Washington, Oregon, California.)

ILLUSTRATIONS: Hook. Fl. Bor. Am. *pl. 226;* Boott, Ill. Carex 17. *pl. 48;* Erythea 8: 67. *f. 35;* Abrams, Ill. Fl. Pacif. St. *f. 793;* Jepson, Man. Fl. Pl. Calif. *f. 193.*

57. **Shortianae** L. H. Bailey, Proc. Am. Acad. 22: 71. 1886. By Carey (in A. Gray, Man. 550. 1848) referred to the ATRATAE Kunth. By Kükenthal (in Engler, Pflanzenreich 4^{20}: 424, 427. 1909) referred to the MAXIMAE Aschers.

Culms leafy; leaves glabrous, the blades flat; spikes 4 or 5, the terminal gynaecandrous, the lateral pistillate or gynaecandrous with a few staminate basal flowers, erect or drooping, cylindric, more or less peduncled, closely many-flowered; bracts nearly sheathless or short-sheathing, the lower leaf-like; pistillate scales 3-nerved, mucronate to acute; perigynia very broadly obovoid, compressed-triangular in cross-section, membranaceous, nerveless, transversely corrugated, tapering to a short-stipitate base, abruptly short-beaked or minutely beaked, the orifice entire or very nearly so; achenes loosely enveloped, triangular with concave sides, jointed with the short, slender, deciduous style; stigmas 3, short.

One species of calcareous districts in the eastern United States and adjacent Canada.

399. **Carex Shortiana** Dewey, Am. Jour. Sci. **30**: 60. 1836.

Carex Shortii Torr. Ann. Lyc. N. Y. **3**: 407. 1836. (Type from Lexington, Kentucky.)
"*Carex formosa* Dewey" Kunth, Enum. Pl. **2**: 431. 1837.
Carex ohiotica Hochst. & Steud.; Steud. Nom. Bot. ed. 2. **1**: 293. 1840. (Name only; type from Ohio.)
Carex oposandra Kunze; Steud. Syn. Cyp. 202, name only. 1855.
Carex aporandra Kunze; Boott, Ill. Carex 92, name only. 1860.

Cespitose and not stoloniferous, the clumps medium-sized to large, from very short, thick, dark, fibrillose rootstocks, the culms 3–9 dm. high, rather stout, stiff, erect, sharply triangular, very rough above, usually shorter than the leaves, phyllopodic, brownish at base; leaves with well-developed blades 4–8 to a fertile culm, regularly disposed and not bunched towards base, the blades flat, 1–3 dm. long. 4–8 mm. wide, stiff, rather light-green, with very rough edges, the middle nerves on each side prominent above, the sheaths greenish-white, sparingly septate-nodulose dorsally, light-brownish-red-tinged ventrally and thin and slightly transversely rugulose, concave at mouth, extending up beyond point of insertion of blade and continuous with the prominent ligule which is longer than wide; terminal spike erect, short-peduncled or nearly sessile, the upper half or three fourths pistillate, the rest staminate, the whole 2–3.5 cm. long, the staminate scales oblong-obovate, cuspidate to obtusish, reddish-brown or straw-colored, with 3-nerved green midrib and hyaline margins; lateral spikes 4 or 5, pistillate with a few basal staminate flowers, the lower more or less strongly separate, the upper approximate, erect, the lower on slender, roughish peduncles often several times the length of the spikes, the others on shorter peduncles, with the uppermost often sessile, the spikes linear-cylindric, 1–3.5 cm. long, 4–5 mm. wide, the perigynia 20–60, spreading or the upper somewhat ascending, closely packed in about six rows; lowest bract leaf-like, little sheathing, exceeding inflorescence, the uppermost reduced; scales ovate, mucronate or acute, much narrower than and from somewhat shorter to somewhat longer than perigynia, reddish-brown-hyaline with strongly developed 3-nerved green center; perigynia very broadly obovoid, compressed-triangular, 2.5–3 mm. long, 2 mm. wide, membranaceous, nerveless, olive-green or soon cinnamon-brown, transversely corrugated, smooth, strongly cuneate-tapering at base and short-stipitate, very obtuse at apex, with a central, usually bent ridge bearing in the middle the very minute (0.2 mm. long), often bent beak with entire or emarginate orifice; achenes oblong-obovoid, triangular, with somewhat concave sides, 1.75 mm. long, 1 mm. wide, granular, sessile, very short-apiculate, jointed with the short deciduous style; stigmas 3, slender, short.

TYPE LOCALITY: "Found in Lexington, Kentucky, by *Dr. Short* and named in his honor."
DISTRIBUTION: Moist woodlands and thickets, in calcareous districts, Pennsylvania to southern Ontario and Iowa, and southward to Virginia, Tennessee, and Oklahoma. (Specimens examined from Pennsylvania, Maryland, District of Columbia, Virginia, West Virginia, Tennessee, Kentucky, Ontario, Ohio, Indiana, Illinois, Iowa, Missouri, Kansas.)
ILLUSTRATIONS: Boott, Ill. Carex 92. *pl. 271;* Britt. & Brown, Ill. Fl. *f. 706;* ed. 2. *f. 1044;* Rob. & Fern. Man. *f. 439;* Drejer, Symb. Car. *pl. 1;* Bull. Lab. Nat. Hist. Univ. Iowa **4**[1]: *pl. 2;* Am. Jour. Sci. **30**: *pl. AA, f. 87.*
NOTE: Boott (Ill. Carex **2**: 92) erroneously states that Dewey ascribed the name *Carex Shortiana* to Torrey. Dewey published it as his own species and in his alphabetical list of species (Am. Jour. Sci. II. **42**: 325), published shortly before he died, he continued to treat it so.

58. **Pendulinae** Fries, Fl. Scan. 189, as to first species cited. 1835. TRACHYCHLAENAE Drejer, Symb. Car. 9. 1844; Holm, Am. Jour. Sci. IV. **16**: 459, in small part. 1903; Kükenth. in Engler, Pflanzenreich **4**[20]: 415, in smaller part. 1909. FLACCAE O. F. Lang, Linnaea **24**: 581. 1851. GLAUCAE Aschers. Fl. Brand. **1**: 783, in part. 1864. Referred in part by Tuckerman (Enum. Caric. 11. 1843) and by Bailey (Proc. Am. Acad. **22**: 87. 1886) to the ACUTAE Fries. Referred by Bailey (Proc. Am. Acad. **22**: 72. 1886) in part to the ANOMALAE Carey and in part (*op. cit.* 91) to the CRYPTOCARPAE Tuckerm. Referred by Holm (Am. Jour. Sci. IV. **16**: 458. 1903) in part to the AEORASTACHYAE Drejer. Referred by Kükenthal (in Engler, Pflanzenreich **4**[20]: 423, 424, 427. 1909) in part to the MAXIMAE Aschers. and in part (*op. cit.*) to the PALUDOSAE Fries.

Phyllopodic; culms leafy below, the lower sheaths not filamentose, or filamentose ventrally; spikes 2 to 7, the upper 1–3 staminate, linear, the lower 2–3 pistillate (sometimes stam-

inate at apex), linear-cylindric or oblong-cylindric, closely very many-flowered, the lower at least long-peduncled, and often more or less drooping; lowest bract from nearly equaling to exceeding the inflorescence, subsheathing; scales sharp-pointed to long-awned; perigynia coriaceous, granular to submembranaceous, firm, appressed-hispidulous to nerveless, except for the two marginal nerves, to strongly ribbed, scarcely inflated, minutely to short-beaked, the orifice entire to shallowly bidentate; achenes rather closely enveloped, triangular, apiculate, jointed with the very abruptly bent or straight style; stigmas 3, slender.

Represented by one or two species, widely distributed in Europe and extending into northern Africa and western Asia, and by three in the southeastern United States; one species is adventive or introduced in several parts of North America and also in New Zealand.

Perigynia appressed-hispidulous; style very abruptly bent. 400. *C. flacca.*
Perigynia papillate or granular; style straight.
  Perigynia strongly ribbed, squarrose, often but slightly glaucous; pistillate scales not retuse; staminate scales tapering into the awn; basal sheaths not filamentose. 401. *C. Joorii.*
  Perigynia nerved, ascending, very glaucous; pistillate scales deeply retuse; staminate scales retuse, abruptly awned.
    Pistillate spikes erect, the lower short-peduncled, pistillate scales purplish-brown-tinged, oblong-obovate; perigynia strongly nerved, at least above; basal sheaths little if at all filamentose. 402. *C. verrucosa.*
    Pistillate spikes nodding at maturity, the lower long-peduncled; pistillate scales reddish-brown-tinged, obovate; perigynia obscurely nerved; basal sheaths usually filamentose. 403. *C. glaucescens.*

400. **Carex flacca** Schreb. Spic. Fl. Lips. App. 1771.

Carex glauca Scop. Fl. Carn. ed. 2. 2: 223. 1772. (Type from Carniola.)
"*Carex limosa* L." Leers, Fl. Herborn. 201. *pl. 15, f. 3.* 1775. (Plant from Germany.)
Carex limosa β Leers, Fl. Herborn. 201. 1775. (Plant from Germany.)
Carex recurva Huds. Fl. Angl. ed. 2. 413. 1778. (Type from England.)
Carex aspera Willd. Fl. Berol. 32. 1787. (Type from Berlin, Germany.)
Carex verna γ Lam. Encyc. **3**: 395. 1791. (Based on *C. glauca* Scop.)
Carex trachycarpos Link, Jour. Bot. Schrad. **1799**[2]: 310. 1799. (Type from Portugal.)
Carex Micheliana Smith, Trans. Linn. Soc. **5**: 270. 1800. (Type from Aberdeen, Scotland.)
"*Carex acuta* L." Suter, Fl. Helv. **2**: 261. 1802. (Plant from Switzerland.)
Carex nigro-lutea Gaudin, Etr. Fl. 196. 1804; Agrost. Helv. **2**: 196. 1811. (Type from Switzerland.)
Carex thuringiaca Willd. Sp. Pl. **4**: 250. 1805. (Type from Thuringia.)
Carex recurva β *C. aspera* Willd. Sp. Pl. **4**: 299. 1805. (Based on *C. aspera* Willd.)
Carex ambleocarpa Willd. Sp. Pl. **4**: 307. 1805. (Based on *C. Micheliana* Smith.)
Carex genuensis DC. Cat. Pl. Hort. Monsp. 87. 1813. (Type from Genoa, Italy.)
Carex glauca β *C. aspera* Poir. in Lam. Encyc. Suppl. **3**: 277. 1813. (Based on *C. aspera* Willd.)
Trasus glaucus S. F. Gray, Nat. Arr. Brit. Pl. **2**: 67. 1821. (Based on *Carex glauca* Scop.)
Trasus glaucus var. *Michelianus* S. F. Gray, Nat. Arr. Brit. Pl. **2**: 68. 1821. (Based on *Carex Micheliana* Smith.)
Trasus glaucus var. *ramosus* S. F. Gray, Nat. Arr. Brit. Pl. **2**: 68. 1821. (Type from England.)
Carex glauca var. *vulgaris* Spenner, Fl. Frib. 68. 1825. (Based on *C. glauca* Scop.)
Carex glauca var. *oligostachya* Spenner, Fl. Frib. 68. 1825. (Type from Germany.)
Carex glauca var. *gynobasis* Spenner, Fl. Frib. 68. 1825. (Type from Germany.)
Carex glauca var. *erecta* Spenner, Fl. Frib. 68. 1825. (Type from Germany.)
Carex glauca var. *brevistachya* Spenner, Fl. Frib. 68. 1825. (Type from Germany.)
Carex glauca var. *glabra* Spenner, Fl. Frib. 68. 1825. (Type from Germany.)
Carex glauca var. *androgyna* Spenner, Fl. Frib. 68. 1825. (Type from Gemany.)
Carex stictocarpa Smith, Engl. Fl. **4**: 127. 1828. (Type from Scotland.)
Carex glauca forma Kunth, Enum. Pl. **2**: 459. 1837. (Based on *C. thuringiaca* Willd.)
Carex glauca f. *typica* Drejer, Symb. Car. 20. 1844. (Based on *C. glauca* Scop.)
Carex glauca f. *arrecta* Drejer, Symb. Car. 20. 1844. (Based on *C. ambleocarpa* Willd.)
Carex glauca f. *bulbosa* Drejer, Symb. Car. 20. 1844. (Type locality not given.)
Carex glauca var. *scabra* Peterm. Flora **27**: 337. 1844. (Type from Germany.)
Carex glauca var. *sphaerostachys* Lange, Haandb. Danske Fl. ed. 2. 620. 1859. (Type from Denmark.)
Carex glauca var. *arenosa* Schur, Enum. Pl. Transsilv. 713. 1866. (Type from Transsylvania.)
Carex glauca var. *leptostachys* Schur, Enum. Pl. Transsilv. 713. 1866. (Type from Transsylvania.)
Carex glauca var. *laxiflora* Schur, Enum. Pl. Transsilv. 713. 1866. (Type from Transsylvania.)
Carex glauca var. *ambleocarpa* Schur, Enum. Pl. Transsilv. 713. 1866. (Based on *C. ambleocarpa* Willd.)
Carex flacca f. *melanostachya* Uechtr.; Fiek, Fl. Schles. 486. 1881. (Type from Germany.)
Carex glauca var. *rotundata* Callmé, Deuts. Bot. Monats. **6**: 1. 1888. (Type from Germany.)
Carex glauca f. *subrotundata* Kükenth. Deuts. Bot. Monats. **8**: 107. 1890. (Type from Germany.)
Carex flacca var. *typica* G. Beck, Fl. Nieder-Oesterr. 141. 1890. (Based on *C. flacca* Schreb.)
Carex flacca var. *aggregata* G. Beck, Fl. Nieder-Oesterr. 141. 1890. (Type from Austria.)
Carex flacca var. *basigyna* G. Beck, Fl. Nieder-Oesterr. 141. 1890. (Type from Austria.)

Carex flacca var. *pallida* G. Beck, Fl. Nieder-Oesterr. 141. 1890. (Type from Austria.)
Carex flacca var. *microcarpa* G. Beck, Fl. Nieder-Oesterr. 141. 1890. (Type from Austria.)
Carex flacca var. *melanocarpa* Murr, Oesterr. Bot. Zeits. **41**: 90. 1891. (Type from Austria.)
Carex flacca var. *oogyna* Murr, Oesterr. Bot. Zeits. **41**: 90. 1891. (Type from Austria.)
Carex hinnulea C. B. Clarke, Symb. Ant. **2**: 159. 1900. (Type from Jamaica.)
Carex glauca var. *depauperata* Hoschede, Bull. Acad. Géogr. Bot. **12**: 205. 1903. (Type from France.)
Carex glauca stirps *eu-glauca* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 135. 1902. (Based on *C. glauca* Scop.)
Carex glauca var. *silvatica* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 135. 1902. (Type from central Europe.)
Carex glauca var. *typica* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 135. 1902. (Based on *C. glauca* Scop.)
Carex glauca var. *typica* subvar. *pallida* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 135. 1902. (Based on *C. flacca* var. *pallida* G. Beck.)
Carex glauca var. *typica* subvar. *melanostachys* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 135. 1902. (Based on *C. flacca* f. *melanostachya* Uechtr.)
Carex glauca var. *typica* subvar. *thuringiaca* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 136. 1902. (Based on *C. thuringiaca* Willd.)
Carex glauca var. *Micheliana* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 136. 1902. (Based on *C. Micheliana* Smith.)
Carex flacca var. *chlorocarpa* R. Keller, Bull. Herb. Boiss. II. **3**: 377. 1903. (Type from southeastern Switzerland.)
Carex glauca f. *pubicarpa* Rohlena, Sitz.-ber. Böhm. Ges. Wiss. **1904**^{38}: 95. 1905. (Type from Montenegro.)
Carex glauca f. *aristolepis* Kükenth.; L. Gross. Mitt. Bad. Bot. Ver. **210/211**: 75. 1906. (Type from Germany.)
Carex glauca f. *scabra* "Peterm." Kükenth. in Engler, Pflanzenreich 4^{20}: 417. 1909. (Based on *C. glauca* var. *scabra* Peterm.)
Carex glauca f. *thuringiaca* "Kunth" Kükenth. in Engler, Pflanzenreich 4^{20}: 417. 1909. (Based on *C. thuringiaca* Willd.)
Carex glauca f. *subrotunda* Kükenth. in Engler, Pflanzenreich 4^{20}: 417. 1909. (Change of spelling for *C. glauca* f. *subrotundata* Kükenth.)
Carex glauca f. *leptostachys* "Schur" Kükenth. in Engler, Pflanzenreich 4^{20}: 417. 1909. (Based on *C. glauca* var. *leptostachya* Schur.)
Carex glauca f. *laxiflora* "Schur" Kükenth. in Engler, Pflanzenreich 4^{20}: 417. 1909. (Based on *C. glauca* var. *laxiflora* Schur.)
Carex glauca f. *silvatica* "Asch. & Graebn." Kükenth. in Engler, Pflanzenreich 4^{20}: 417. 1909. (Based on *C. glauca* var. *silvatica* Asch. & Graebn.)
Carex glauca f. *pallida* "G. Beck" Kükenth. in Engler, Pflanzenreich 4^{20}: 417. 1909. (Based on *C. glauca* var. *pallida* G. Beck.)
Carex glauca f. *flavescens* Kükenth. in Engler, Pflanzenreich 4^{20}: 417. 1909. (Type European.)
Carex glauca f. *chlorocarpa* "R. Keller" Kükenth. in Engler, Pflanzenreich 4^{20}: 417. 1909. (Based on *C. glauca* var. *chlorocarpa* R. Keller.)
Carex glauca f. *melanostachya* "Uechtr." Kükenth. in Engler, Pflanzenreich 4^{20}: 417. 1909. (Based on *C. flacca* f. *melanostachya* Uechtr.)
Carex glauca f. *Micheliana* "Asch. & Graebn." Kükenth. in Engler, Pflanzenreich 4^{20}: 417. 1909. (Based on *C. Micheliana* Smith.)

Loose cespitose from slender, elongate rootstocks, sending forth long slender horizontal stolons, the culms slender but stiff and erect, phyllopodic, 2–6 dm. high, exceeding the leaves, sharply triangular with flat sides, rough above, reddish-brown at base, leaves with well-developed blades 8–15 to a fertile culm, mostly clustered near the base, not septate-nodulose, the blades flat with revolute margins above and keeled below, usually 1–4 dm. long, 2–5 mm. wide, glaucous, thick, spreading, rough-serrulate on margins, the sheaths tight, copper-colored ventrally, concave at mouth, not breaking nor becoming filamentose, the ligule much wider than long; sterile shoots aphyllopodic, the lower sheaths breaking and becoming sparingly filamentose; staminate spikes 1–3, approximate, the uppermost short-peduncled, the lateral sessile, linear, 1.5–4 cm. long, 2–6 mm. wide, the scales oblong-obovate, obtuse, brownish-black with lighter midrib and hyaline margins; pistillate spikes 2 or 3, not aggregated, at first erect, soon more or less nodding on slender, rough peduncles, usually somewhat shorter than the spikes, often staminate at apex, linear- or oblong-cylindric, 1–4 cm. long, 5–7 mm. wide, containing 50–100 ascending or at length somewhat spreading perigynia closely packed in several rows; bracts leaflet-like, the lowest equaling or exceeding inflorescence, sub-sheathing and dark-tinged at base; scales ovate-lanceolate, acute, acuminate or often short-mucronate, dark-brown with lighter center and hyaline margins, nearly as wide as and often nearly equaling perigynia; perigynia ovoid-oval or obovoid, suborbicular and slightly triangular in cross-section, 3 mm. long, 1.7 mm. wide, nerveless except the two marginal nerves, granular, sparingly appressed-hispid above, coriaceous, straw-colored or becoming brownish-black, rounded

and substipitate at base, rounded at apex, abruptly very minutely beaked, the beak hardly 0.3 mm. long with entire orifice; achenes obovoid, 2.5 mm. long, 1.25 mm. wide, rather closely enveloped, triangular, the angles rounded, the sides rather convex below, brownish-puncticulate, jointed with the very abruptly bent, very short, non-exserted, slender style; stigmas 3, slender.

TYPE LOCALITY: "Ad fossas passim, v. c. loco ab ill. Boehmero indicato," Leipzig, Germany.
DISTRIBUTION: Naturalized in meadows, Nova Scotia, Quebec, and Ontario; St. Croix; Jamaica. Widely distributed in Europe, western Asia, and northern Africa. (Specimens examined from Nova Scotia, Quebec, Ontario, Jamaica.)
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 742;* ed. 2. *f. 1033;* Rob. & Fern. Man. *f. 457;* Schkuhr, Riedgr. *pl. O, f. 57a; pl. P, f. 57b; pl. Zz, f. 113; pl. Ppp, f. 155; pl. Cccc, f. 184;* Fl. Dan. *pl. 1051, 2666;* Sturm, Deuts. Fl. **53**: *pl. 15;* **69**: *pl. 11* (as *C. erythrostachys*); Reichenb. Ic. Fl. Germ. **8**: *pl. 269, f. 648; pl. 270, f. 650* (*C. clavaeformis*); Leers, Fl. Herborn. *pl. 15, f. 3* (as *C. limosa*); Drejer, Symb. Car. *pl. 6;* Anderss. Cyp. Scand. *pl. 7, f. 79;* Host, Gram. Austr. **1**: *pl. 91;* Coste, Fl. Fr. *f. 3852, 3854* (*C. clavaeformis*); Hegi, Ill. Fl. Mittel-Eur. *pl. 50, f. 1;* Engl. Bot. *pl. 1506; pl. 2236* (var. *Micheliana*); Suppl. *pl. 2772* (*C. stictocarpa*); ed. 2. *pl. 1664, pl. 1665* (var. *Micheliana*), *pl. 1646* (var. *stictocarpa*); Benth. Handb. Brit. Fl. ed. 2. *f. 1132;* Baxter, Brit. Bot. *pl. 440* (as *C. recurva*); Hallier, Deuts. Fl. 349. *pl. 438, pl. 449* (*C. clavaeformis*); Karst. Deuts. Fl. 349. *f. 175* (*5*); Thomé, Fl. Deuts. *pl. 97, A–B;* Willd. Fl. Berol. *pl. 1, f. 2;* Willd. Acta Berol. *pl. 3.*
NOTE: The name *Carex glauca* has been attributed to Murray (Prodr. Stirp. Götting. 76. 1770). He, however, merely gives reference to *Haller 1408*, without giving a binomial name. Haller's *1408* is one of the synonyms given by Scopoli in establishing *C. glauca* Scop.

401. **Carex Joorii** L. H. Bailey, Proc. Am. Acad. **22**: 72. 1886.

"*Carex macrokolea* Steud." Rob. & Fern. Man. 247. 1908.

Loosely cespitose, from creeping, stout, tough, blackish, scaly rootstocks, the culms strongly phyllopodic, 4–10 dm. high, erect, stout, exceeding the leaves, sharply triangular and much roughened above, reddish-brown at base, the sterile shoots numerous, phyllopodic; leaves with well-developed blades 8–15 to a fertile culm, on the lower half, the lower bunched, the upper separate, not septate-nodulose, the blades thin but stiff, glaucous, channeled at base, flat with revolute margins above, 2–5 dm. long, 3–10 mm. wide, serrulate-margined and very rough towards the long-attenuate apex, the sheaths very thin and yellowish-tinged ventrally, not filamentose, truncate at mouth, the ligule short; staminate spike one, long-rough-peduncled, erect, 1.5–3 cm. long, 3 mm. wide, the scales narrowly oblong-obovate, tapering into a short, rough awn, white-hyaline with green, three-nerved center and slightly reddish-brown-tinged; anthers red, 4 mm. long; pistillate spikes 3–5, approximate or the lowest separate, erect, the lower on rough peduncles shorter or somewhat longer than the spikes, the upper shorter-peduncled to nearly sessile, oblong, 1.5–6 cm. long, 7–10 mm. wide, sometimes sparingly staminate at apex, densely flowered, the perigynia 15–50, squarrose-spreading at maturity in several to many rows; lowest bract slightly sheathing, leaflet-like, from somewhat shorter to longer than inflorescence, the upper much reduced; scales obovate, not retuse, abruptly rough-awned, the body narrower and shorter than the perigynia, hyaline with green 3-nerved center and more or less reddish-brown-tinged; perigynia very broadly obovoid, inflated-suborbicular in cross-section, 4 mm. long, 3–3.5 mm. wide, strongly many-ribbed, dull-green, often but slightly glaucous, submembranaceous, tapering at base, sessile, the beak 1 mm. long, flat, conic, straight or slightly bent, the orifice entire; achenes rhomboid-orbicular, rather loosely enveloped, 2.5 mm. long and somewhat wider, triangular with deeply concave sides and blunt somewhat knobbed angles, yellowish, sessile, abruptly apiculate, jointed with the straight, short, thickish style; stigmas 3, reddish-brown.

TYPE LOCALITY: "Comite Swamp, near Baton Rouge, La." (*Joor*).
DISTRIBUTION: Hummocks in cypress swamps, Florida to Texas, northward to Maryland, and in the Mississippi Valley to western Tennessee and southeastern Missouri. Flowers in summer. (Specimens examined from Virginia, Maryland, South Carolina, Georgia, Florida, Mississippi, Louisiana, Texas, Arkansas, western Tennessee, southeastern Missouri.)
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. ed. 2. *f. 178;* Rob. & Fern. Man. *f. 517* (as *C. macrokolea* Steud.).

402. **Carex verrucosa** Muhl. Descr. Gram. 261. 1817.

Carex glaucescens var. *androgyna* M. A. Curt. Am. Jour. Sci. 44: 84. 1843. (Type from Wilmington, North Carolina.)
Carex verrucosa var. *androgyna* "M. A. Curt." Dewey, Am. Jour. Sci. 48: 140. *pl. DD, f. 99.* 1845. (Based on *C. glaucescens* var. *androgyna* M. A. Curt.)
Carex macrokolea Steud. Syn. Cyp. 223. 1855. (Type from New Orleans, Louisiana.)
Carex brasiliensis var. *gracilis* Böck. Linnaea 41: 292. 1877. (Excluding citations mostly; type from Louisiana.)
Carex sp. Harper, Bull. Torrey Club 32: 460. 1905. (Brunswick, Georgia.)
Carex glaucescens f. *macrokolea* Kükenth. in Engler, Pflanzenreich 4[20]: 733. 1909. (Based on *C. macrokolea* Steud.)

Loosely cespitose, from creeping, rather slender, tough, blackish, scaly rootstocks, the culms 6–12 dm. high, stout below, rather slender above, sharply triangular with concave sides and smooth angles, much exceeding leaves, phyllopodic, reddish-brown at base, the basal sheaths little if at all filamentose; leaves with well-developed blades 6–12 to a fertile culm, mostly clustered near the base, not septate-nodulose, the blades deeply channeled, keeled and somewhat triangular at base, flat above with revolute margins, 2–7 dm. long, 4–10 mm. wide, glaucous, punctate, firm, much roughened towards the long-attenuate apex, the sheaths very thin and yellowish-tinged and strongly dark-red-dotted ventrally, truncate at mouth, the ligule short; staminate spike normally one (or with 1 or 2 additional sessile ones at base), erect, linear, 3–6 cm. long, 4–6 mm. wide, the peduncle rough, the scales oblanceolate or obovate, deeply retuse, abruptly strongly rough-awned, purplish-brown with green 3-nerved center and very narrow hyaline margins; pistillate spikes 3 or 4, or occasionally up to 6, strongly separate, erect, the lower on short peduncles, the upper sessile or nearly so, 2.5–8 cm. long, 7–10 mm. wide, densely flowered, the perigynia numerous, ascending, in several to many rows; lowest bract leaflet-like, slightly sheathing, exceeding inflorescence, the others reduced; scales with oblong-obovate bodies, narrower and somewhat shorter than the perigynia, purplish-brown with green 3-nerved center, and very narrow hyaline margins, deeply retuse, abruptly rough-cuspidate, the awns from one third to twice the length of the body of the scale; perigynia broadly obovoid, triangular, not inflated, 3–4.5 mm. long, 2.5 mm. wide, very glaucous, strongly several-nerved (at least above), papillate, subcoriaceous, tapering at base, sessile or nearly so, contracted at apex into a minute (0.25 mm. long) beak with entire orifice; achenes very broadly rhomboid-obovoid, triangular with deeply concave sides and prominent blunt angles, 2.5 mm. long and about as wide, closely filling perigynium, granular, sessile, abruptly apiculate, jointed with the straight, slender style; stigmas 3, slender, reddish-brown.

TYPE LOCALITY: "Habitat in Georgia et Carolina."
DISTRIBUTION: Pineland swamps, South Carolina to Florida and Louisiana. Flowers in spring and sometimes again later in the season. (Specimens examined from South Carolina, Georgia, Alabama, Florida, Mississippi, Louisiana.)
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 741*; Boott, Ill. Carex 89, in part. *pl. 262;* Am. Jour. Sci. 77: *pl. M, f. 41* (*C. verrucosa*); Am. Jour. Sci. 48: *pl. DD, f. 99* (*C. verrucosa* var. *androgyna*).
NOTE: A scrap of this species received from Muhlenberg is preserved in the Torrey Herbarium. The species answers to his description and that of Elliott (Bot. S. C. & Ga. 2: 555. 1824). It does not at all agree with *Carex stricta* Lam., as intimated by Kükenthal (Pflanzenreich 4[20]: 733. 1909).

403. **Carex glaucescens** Ell. Bot. S. C. & Ga. 2: 553. 1824.

Carex sempervirens Schw. Ann. Lyc. N. Y. 1: 70. 1824. (Type from Hillsborough, North Carolina.) Not *C. sempervirens* Vill. 1787.
Carex inundata Willd.; Schlecht. Linnaea 10: 267. 1835. (Type from "Carolina.")
Edritria glaucescens Raf. Good Book 26. 1840. (Based on *Carex glaucescens* Ell.)
Carex glaucescens var. *polystachys* M. A. Curt. Am. Jour. Sci. II. 7: 410. 1849. (Type from Society Hill, South Carolina.)
Carex rufidula Steud. Syn. Cyp. 220. 1855. (Type from Louisiana.)
Carex verrucosa var. *glaucescens* Wood, Bot. & Fl. ed. 1871. 379. 1871. (Based on *C. glaucescens* Ell.)
Carex brasiliensis β *gracilis* Böck. Linnaea 41: 292. 1877. (As to citations mostly.)
"*Carex verrucosa* Muhl." Rob. & Fern. Man. 247. 1908.

Loosely cespitose from creeping, stout, tough, blackish, scaly rootstocks, the culms 5–12 dm. high, stout below, slender above, exceeding the leaves, sharply triangular with concave sides, somewhat roughened above, strongly phyllopodic, reddish-brown-tinged at base, the

basal sheaths usually strongly filamentose; leaves with well-developed blades 5–10 to a fertile culm, on the lower half, not septate-nodulose, the blades deeply channeled, keeled and triangular at base, flat above with revolute margins, glaucous, firm, 2–6 dm. long, 3–5 mm. wide, very rough towards the long-attenuate apex, the sheaths very thin and yellowish-tinged and red-dotted ventrally, truncate at mouth, the ligule short; staminate spike one, erect, linear, 2.5–6 cm. long, 4–5 mm. wide, the peduncle rough, the scales oblanceolate or narrowly obovate, retuse and abruptly strongly awned, reddish-brown with green 3-nerved center and very narrow hyaline margins; pistillate spikes usually 3 or 4 but reported sometimes to be as many as 12, more or less strongly separate; on rough, slender peduncles of about their own length, at first erect, finally nodding, the spikes linear-oblong, 2.5–5 cm. long, 7–10 mm. wide, densely flowered, often more or less staminate at apex, the perigynia numerous, ascending, in several to many rows; lowest bract leaf-like, short-sheathing, equaling or exceeding the inflorescence, the upper much reduced; scales with obovate bodies, narrower and shorter than the perigynia, deeply retuse, reddish-brown with prominent 3-nerved green midrib, the lower (at least) abruptly long-cuspidate; perigynia broadly ovoid or obovoid, triangular, not inflated, 3–3.5 mm. long, 2–2.25 mm. wide, very glaucous, papillate, subcoriaceous, 2-ribbed and obscurely several-nerved, round-truncate and very short-stipitate at base, contracted at apex into a minute (0.25–0.5 mm. long) beak with orifice entire or nearly so; achenes broadly rhomboid-obovoid, closely enveloped, 2.5 mm. long, 2 mm. wide, triangular with deeply concave sides and prominent blunt angles, brownish, granular, sessile, abruptly apiculate, jointed with the short, straight, slender style; stigmas 3, slender, reddish-brown.

TYPE LOCALITY: South Carolina.

DISTRIBUTION: Pineland swamps, Louisiana to Florida, and northward to southeastern Virginia. Flowers in summer. (Specimens examined from Virginia, North Carolina, South Carolina, Georgia, Alabama, Florida, Mississippi, Louisiana.)

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. ed. 2. *f. 1046;* Engler, Pflanzenreich 4^{20}: *f. 125, H, J.;* Rob. & Fern. Man. *f. 516* (as *C. verrucosa*); Boott, Ill. Carex 89, in part. *pl. 261, 263;* Drejer, Symb. Car. *pl. 3;* Am. Jour. Sci. V. **3**: 261. *f. 1–3;* Am. Jour. Sci. **11**: *pl. M, f. 39.*

59. **Limosae** Tuckerm. Enum. Caric. 12. 1843; Fries, Summa Veg. Scand. 71. 1845; Carey, in A. Gray, Man. 549. 1848; Kükenth. in Engler, Pflanzenreich 4^{20}: 502. 1909; Mackenzie, in Rydb. Fl. Rocky Mts. 135. 1917. PENDULINAE Fries, Fl. Scan. 189, in part. 1835; L. H. Bailey, Proc. Am. Acad. **22**: 94, mostly. 1886. AEORASTACHYAE Drejer, Symb. Car. 9, in small part. 1844; Holm, Am. Jour. Sci. IV. **16**: 457, in small part. 1903. AEORASTACHYAE Limosae Holm, Am. Jour. Sci. IV, **49**: 431. 1920; *op. cit.* V. **3**: 262. 1922.

Culms slender, leafy below; roots yellowish-brown felted; leaf-blades narrow; terminal spike linear, staminate or gynaecandrous; lateral spikes 1–4, pistillate or gynaecandrous with a few staminate flowers, distant, narrowly oblong to oblong or suborbicular, closely several- to many-flowered in several rows, drooping or weakly erect on slender peduncles; bracts leaflet-like, sheathless or very short-sheathing; perigynia appressed or ascending, coriaceous or membranaceous, ovoid to broadly elliptic, glaucous-green or straw-colored, beakless or nearly so; achenes triangular, usually closely enveloped, jointed with the short, straight, slender, somewhat exserted style; stigmas 3.

Seven species, of sphagnous bogs or swamps; five of them widely distributed in the colder and temperate parts of Eurasia and North America, one restricted to the Atlantic coastal plain of the United States, and one confined to the southern part of South America.

Perigynia suborbicular-triangular in cross-section.
  Pistillate scales partly enveloping the perigynia at base; pistillate spikes 6–20 mm. long; perigynia 2–25 in each spike.
    Perigynia 3–3.5 mm. long, round-tapering at apex; achenes elliptic; pistillate scales broadly ovate to suborbicular; culms obtusely triangular, stiff; pistillate spikes usually 2–10-flowered. 404. *C. rariflora.*
    Perigynia 4–4.5 mm. long, tapering at apex; achenes broadly obovoid; pistillate scales broadly ovate; culms sharply triangular, not stiff; pistillate spikes usually 10–25-flowered. 405. *C. stygia.*
  Pistillate scales not enveloping the perigynia at base; pistillate spikes 1.5–5 (usually 2.5–4) cm. long; perigynia 20–60 in each spike. 406. *C. Barrattii.*
Perigynia compressed-triangular in cross-section.
  Pistillate scales short-cuspidate to obtuse.

Plant strongly stoloniferous; leaf-blades more or less glaucous, deeply canaliculate, 1–3 mm. wide; pistillate scales persistent, ovate to suborbicular, about the length of to somewhat exceeding perigynia; perigynia minutely beaked; fertile culms obliquely ascending, strongly phyllopodic. 407. *C. limosa.*

Plant loosely cespitose; leaf-blades deep-green, 2–4 mm. wide; pistillate scales soon deciduous, lanceolate or ovate-lanceolate, usually conspicuously exceeding perigynia; perigynia scarcely beaked; fertile culms erect, clothed at base with the dried-up leaves of the preceding year. 408. *C. paupercula.*

Pistillate scales terminating in a slender rough awn 2–12 mm. long. 409. *C. macrochaeta.*

404. **Carex rariflora** (Wahl.) Smith, Engl. Bot. *pl. 2516.* 1813.

Carex limosa var. *pauciflora* Wahl.; Schkuhr, Riedgr. 105. 1801. (Type from Norway.)
Carex limosa var. *rariflora* Wahl. Sv. Vet.-Akad. Nya Handl. **24**: 162. 1803. (Type from Lapland.)
"*Carex laxa* Wahl." Schkuhr, Riedgr. Nachtr. 79. 1806. (Plant from Lapland.)
Trasus rariflorus S. F. Gray, Nat. Arr. Brit. Pl. **2**: 68. 1821. (Based on *Carex rariflora* Smith.)
Carex rariflora var. ? *pallidior* M. N. Blytt, Norges Fl. **1**: 210. 1861. (Type from Norway.)
Carex rariflora var. *firmior* Norman, Förh. Vid.-Selsk. Christ. **27**[16]: 51. 1893. (Type from northern Norway.)
Carex rariflora var. *firmior* f. *rufescens* Norman, Förh. Vid.-Selsk. Christ. **27**[16]: 51. 1893. (Type from northern Norway.)
Carex rariflora var. *firmior* f. *expallida* Norman, Förh. Vid.-Selsk. Christ. **27**[16]: 51. 1893. (Type from northern Norway.)
Carex rariflora var. *firmior* f. *baeostachya* Norman, Förh. Vid.-Selsk. Christ. **27**[16]: 51. 1893. (Type from northern Norway.)
Carex rariflora var. *brevipedunculata* Meinsh. Acta Hort. Petrop. **18**: 351. 1901. (Type from Sachalin.)
Carex rariflora f. *pallidior* "M. N. Blytt" Kükenth. in Engler, Pflanzenreich **4**[20]: 504. 1909. (Based on *C. rariflora* var. (?) *pallidior* M. N. Blytt.)
Carex rariflora f. *rufescens* "Norman" Kükenth. in Engler, Pflanzenreich **4**[20]: 504. 1909. (Based on *C. rariflora* var. *firmior* f. *rufescens* Norman.)
Carex rariflora f. *baeostachya* "Norman" Kükenth. in Engler, Pflanzenreich **4**[20]: 504. 1909. (Based on *C. rariflora* var. *firmior* f. *baeostachya* Norman.)
Carex rariflora f. *brevipedunculata* "Meinsh." Kükenth. in Engler, Pflanzenreich, **4**[20]: 504. 1909. (Based on *C. rariflora* var. *brevipedunculata* Meinsh.)

Loosely stoloniferous, from slender, elongate, dark-colored, scaly, branching rootstocks, the clumps small, the culms 1–3.5 dm. high, stiff, much exceeding the leaves, obtusely triangular, the angles smooth, dark-purplish-brown at base, and clothed with the short-bladed dried-up leaves of the previous year; leaves with well-developed blades 3–6 to a fertile culm, clustered at the base, the blades green, erect, thickish and stiff, flat or with somewhat involute margins, 5–20 cm. long, 1.5–2.5 mm. wide, somewhat roughened towards apex; the sheaths very thin and hyaline ventrally and slightly yellowish-brown-tinged, obliquely truncate at mouth, the ligule prominent; terminal spike staminate, peduncled, erect or sometimes drooping, linear, 6–15 mm. long, 1–2 mm. wide, several-flowered, the scales oblanceolate or obovate, acute or obtusish, dark-reddish-brown with lighter midrib and very narrow hyaline margins; pistillate spikes 1–3 (usually 2), approximate, the lowest on a slender, smooth peduncle of its own length, at first erect, later drooping, the others on shorter peduncles and more erect, the spikes narrowly oblong, 6–15 mm. long, 3.5–5 mm. wide, the perigynia usually 2–10, suberect, rather closely packed, but in few rows; bracts colored at base, the auricles prominent, the lowest bract leaflet-like, 5–20 mm. long, short-sheathing or sheathless, shorter than inflorescence, the upper rarely prolonged; scales broadly ovate or suborbicular, obtuse to abruptly mucronate, dark-reddish-brown varying to yellowish or reddish-brown or dark-brown, with lighter midrib and very narrow hyaline margins, about length of but wider than and partially enveloping perigynia; perigynia ovoid to broadly ovoid-elliptic, suborbicular-triangular in cross-section and slightly 2-edged, several-nerved on lower half, 3–3.5 mm. long, 1.75–2 mm. wide, glaucous-green, coriaceous, densely papillate, smooth, tapering to an obconic substipitate base, round-tapering and beakless at apex and with entire orifice, but often tipped by the persistent style; achenes triangular, with slightly convex sides, elliptic, black, substipitate, 2 mm. long, 1.25 mm. wide, in lower two thirds of perigynium, rather closely enveloped, tapering at apex and apiculate and obscurely jointed with the style, the latter slender, exserted, at length deciduous; stigmas 3, slender, elongate.

TYPE LOCALITY (of *Carex limosa* var. *rariflora*, on which *C. rariflora* is based): "Hab. in locis irriguis infra alpinis per Norlandiam Septentrionalem."

DISTRIBUTION: Cold open bogs and wet slopes, acid conditions, Greenland to Alaska, and southward in the east to Mt. Katahdin, Maine; also widely distributed in arctic and subarctic Eurasia. (Specimens examined from Greenland, Labrador, Newfoundland, St. Pierre, Miquelon, Quebec, Mt. Katahdin, Maine, Keewatin, Mackenzie [Seward Peninsula and Aleutian Islands], Alaska.)

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 733;* ed. 2. *f. 1035;* Rob. & Fern. Man. *f. 468;* Engler, Pflanzenreich 4[20]: *f. 80, A–D;* Fl. Dan. *pl. 2432;* Boott, Ill. Carex 79. *pl. 217;* Jour. Russe Bot. **1911**: 141. *f. 117;* Ostenf. Fl. Arct. 68. *f. 38;* Anderss. Cyp. Scand. *pl. 6, f. 70;* Engl. Bot. *pl. 2516;* ed. 2. *pl. 1649;* Schkuhr, Riedgr. *pl. Aaa, f. 78* (as *C. laxa* Wahl.).

NOTE: The Minnesota record for this species is based on a specimen of *Carex limosa L.*

405. **Carex stygia** Fries, Mant. 3: 141. 1842.

Carex rariflora var. *stygia* Anderss. Cyp. Scand. 35. 1849. (Based on *C. stygia* Fries.)
Carex limosa var. Böck. Linnaea **41**: 164. 1877. (Type from Sitka.)
Carex nigrita Fisch.; Böck. Linnaea **41**: 164, as synonym. 1877. (Type from Sitka.)
Carex limosa var. *stygia* L. H. Bailey, Proc. Am. Acad. **22**: 95. 1886. (Based on *C. stygia* Fries.)
Carex limosa var. *nigrita* (Fisch.) "Böck." Kükenth. in Engler, Pflanzenreich 4[20]: 504, as synonym. 1909. (Based on *C. nigrita* Fisch.)

Loosely stoloniferous from slender, elongate, dark-purple, scaly and fibrillose rootstocks usually bulbous-thickened at the nodes, the culms arising singly or a few together, slender, 2–6 dm. high, sharply triangular, erect but not stiff, smooth or slightly roughened above, usually somewhat exceeding leaves, dark-purplish at base and conspicuously clothed with the dried-up leaves of the previous year; leaves with well-developed blades usually 3–5 to a fertile culm, on the lower fourth, the blades green, not stiff or thickish, flat with slightly revolute margins, usually 1–3 dm. long, 2–4 mm. wide, roughened towards the attenuate apex, the sheaths thin and hyaline ventrally and slightly yellowish-brown-tinged, obliquely truncate at mouth, the ligule prominent; terminal spike staminate, erect, strongly peduncled, many-flowered, 1–2.5 cm. long, 2–3 mm. wide, the scales oblong-obovate, obtuse, dark-reddish-brown with narrow but conspicuous white-hyaline margins and lighter center; pistillate spikes 1 or 2, more or less strongly separate, drooping on smooth capillary peduncles about length of spikes, the spikes oblong, 12–20 mm. long, 6–8 mm. wide, containing usually 10–25 closely packed appressed-ascending perigynia in several rows; bracts reduced, leaflet-like, dark, auricled but not sheathing, shorter than inflorescence; scales broadly ovate, acute to abruptly short-cuspidate, black with lighter midrib, as wide as and usually slightly shorter than mature perigynia and somewhat enveloping them towards base; perigynia ovoid, flattened, suborbicular-triangular in cross-section, glaucous-green or whitish, 2-edged, strongly several-nerved, 4–4.5 mm. long, 2 mm. wide, tapering at base, coriaceous, very densely papillate, smooth, short-tapering at apex but not beaked, the orifice entire; achenes triangular, broadly obovoid, 3.5 mm. long, 1.75 mm. wide, closely enveloped, contracted above and apiculate and obscurely jointed with the slender, at length deciduous, short-exserted style; stigmas 3, slender, long.

TYPE LOCALITY: Finmark.

DISTRIBUTION: Abundant in boggy places on the Pacific coast, where it is a characteristic species often collected, from northwestern Washington to St. Lawrence Island; also very locally in northern Europe. (Specimens examined from Washington, northeastern Vancouver, Queen Charlotte Islands, Alaska along entire coast.)

ILLUSTRATIONS: Am. Jour. Sci. V. **3**: 261. *f. 8–11;* Anderss. Cyp. Scand. *pl. 7, f. 71.*

406. **Carex Barrattii** Schw. & Torr. Ann. Lyc. N. Y. 1: 361. 1826.

Carex littoralis Schw. Ann. Lyc. N. Y. **1**: 70. 1824. (Type from Cape May, New Jersey.) Not *C. littoralis* Krock. 1814.
Olamblis Barrattii Raf. Good Book 26. 1840. (Based on *Carex Barrattii* Schw. & Torr.)
"*Carex flacca* Schreb." Carey, in A. Gray, Man. 549. 1848.
Carex variegata Scheele, Linnaea **23**: 565. 1850. (Type from New Jersey.) Not *C. variegata* Lam. 1789.

Loosely cespitose, forming beds, sending forth long, horizontal, stout, yellowish-brown, scaly stolons, the culms 3–9 dm. high, slender but usually strict, with concave sides, much exceeding the leaves, sharply triangular, the angles smooth or nearly so, brownish-tinged at base, strongly aphyllopodic, the basal sheaths breaking and becoming filamentose, sharply

keeled and strongly glaucous; sterile shoots very leafy, obscurely aphyllopodic, *i. e.*, 2–4 of the basal sheaths bladeless, the others very long-bladed; leaves with well-developed blades 4–6 to a fertile culm, on the lower third, the blades erect or ascending, with strongly revolute margins, thin but firm, flat or more or less channeled above, 0.5–3 dm. long, or up to 5 dm. on the sterile shoots, 2–4 mm. wide, light-green or glaucous-green when young, rough towards the tip, long-attenuate, the sheaths smooth dorsally, hyaline and yellowish-brown-tinged and red-dotted ventrally, the ligule conspicuous, longer than wide; staminate spike solitary (occasionally with an additional smaller one at base), strongly peduncled, linear, 3–5 cm. long, 2.5–5 mm. wide, the scales oblong-obovate, obtuse, brownish or blackish with slender, lighter midvein obsolete at tip, and narrow hyaline margins; pistillate spikes 2–4, slightly separate, drooping on slender, smooth peduncles or the upper more erect, the peduncles from the length of to much shorter than the spikes, the spikes linear-oblong, 1–5 cm. (usually 2.5–4 cm.) long, 4.5–6 mm. wide, from little to strongly staminate above, closely flowered or somewhat attenuate at base, the perigynia very numerous (20–60), ascending in several rows; lower bract short-sheathing, squamiform, 2–7 cm. long, shorter than culm, yellowish-brown-tinged at base; upper bracts scale-like, much reduced; scales ovate, obtusish or acute, thin, close-appressed, nearly as wide as but somewhat shorter than the perigynia, black or brownish with lighter 1–3-nerved midrib and very narrow hyaline margins; perigynia ovoid or oval, suborbicular in cross-section or more or less triangular-suborbicular, 2.5–3 mm. long, 1.25–1.75 mm. wide, 2-ribbed and faintly few-nerved, membranaceous, puncticulate, granular, straw-colored, strongly blackish-tinged, sessile and rounded at base, rounded at apex and abruptly minutely beaked, the beak 0.2–0.5 mm. long, nearly entire; achenes triangular with concave sides, very closely enveloped and filling perigynium, ovoid or oblong-ovoid, 2 mm. long, 1–1.5 mm. wide, yellowish, granular, substipitate, minutely apiculate, jointed with the very short, slender style; stigmas 3, slender, dark-tinged, rather long.

TYPE LOCALITY: "Hab. on the sea-coast of New Jersey near Cape May." (*Z. Collins.*)

DISTRIBUTION: Acid swamps in pinelands, near the coast, Connecticut to North Carolina. A very local species. (Specimens examined from Connecticut, Long Island, New Jersey, southeastern Pennsylvania, Delaware, Maryland, North Carolina.)

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 732;* ed. 2. *f. 1038;* Rob. & Fern. Man. *f. 469;* Rep. N. J. Mus. **1910**: *pl. 23, f. 4;* Boott, Ill. Carex 69. *pl. 189;* Am. Jour. Sci. **12**: *pl. P, f. 51;* V. **3**: 261. *f. 4–7.*

NOTE: Recorded from Alabama by M. A. Curtis (Am. Jour. Sci. II. **7**: 410. 1849) but I have seen no specimens from south of North Carolina, and the species is not listed by Mohr in his "Plant life of Alabama."

407. Carex limosa L. Sp. Pl. 977. 1753.

Carex elegans Willd. Fl. Berol. 34. *pl. 1, f. 4.* 1787. (Type from Berlin, Germany.)
Trasus limosus S. F. Gray, Nat. Arr. Brit. Pl. **2**: 67. 1821. (Based on *Carex limosa* L.)
Carex limosa subsp. *C. oblonga* Dewey, Am. Jour. Sci. **10**: 42. 1825. (Type from White Mountains, New Hampshire.)
"*Carex laxa* Wahl." Dewey, Am. Jour. Sci. **26**: 376. 1834.
Carex limosa var. *vulgaris* Tausch, Flora **17**: 178. 1834. (Type European.)
Carex limosa var. *alpestris* Tausch, Flora **17**: 178. 1834. (Type European.)
Carex limosa var. *acuminata* Tausch, Flora **17**: 178. 1834. (Type European.)
Carex limosa var. *stenocarpa* Tausch, Flora **17**: 178. 1834. (Type European.
Carex limosa var. *ciclocarpa* Tausch, Flora **17**: 178. 1834. (Type European.)
Facalos limosa Raf. Good Book 26. 1840. (Based on *Carex limosa* L.)
Carex limosa f. *pauciflora* Asch. Fl. Brand. **1**: 783. 1864. (Type from central Europe.)
Carex limosa var. *Painei* Dewey, Am. Jour. Sci. II. **39**: 71. 1865. (Type from Utica, New York.)
Carex limosa f. *stans* Bolle, Verh. Bot. Ver. Prov. Brand. **7**: 27. 1865. (Type from central Europe.)
Carex limosa var. *radicalis* Paine, Ann. Rep. N. Y. State Cab. **18**: 162. 1865. (Type from Herkimer County, New York.)
Carex glaucocarpa St.-Lag. in Cariot, Étude Fl. Ed. 8. **2**: 856. 1889. (Based on *C. limosa* L.)
Carex limosa subsp. *subalpina* Brügger, Kneucker, Allg. Bot. Zeits. **5**: 196. 1899. (Type from Switzerland.)
Carex limosa subsp. *subalpina* f. *pallescens* Kükenth.; Kneucker, Allg. Bot. Zeits. **5**: 196. 1899. (Type from Sweden.)
Carex limosa f. *laxiformis* Lackowitz; Asch. & Retzd. Verh. Bot. Ver. Prov. Brand. **44**: 164. 1902. (Type from central Europe.)
Carex limosa f. *robustior* Lackowitz; Asch. & Retzd. Verh. Bot. Ver. Prov. Brand. **44**: 164. 1902. (Type from central Europe.)
Carex limosa var. *fusco-cuprea* Kükenth. in Engler, Pflanzenreich 4^{20}: 505. 1909. (Type from Japan.)

Strongly long-stoloniferous from slender, long-running, brown, scaly rootstocks, the culms one to several together, slender, arising obliquely, 2–6 dm. high, much exceeding their leaves, sharply triangular, erect but not stiff, more or less roughened on angles or nearly smooth, purplish-red at base, mostly strongly aphyllopodic; leaves with well-developed blades 1–3 to a fertile culm, on the lower third, the blades not thick, but strict, deeply canaliculate, more or less glaucous, 5–15 cm. long, 1–3 mm. wide, rough on margins and towards apex, the sheaths very thin and hyaline ventrally, the lower sometimes slightly filamentose, the ligule very short; sterile culm-blades more numerous, much longer, 12–36 cm. long; staminate spike solitary, slender, long-peduncled, erect or drooping, linear, many-flowered, 1–3 cm. long, 2.5 mm. wide, the scales broadly obovate, short-cusped to obtuse, light-reddish-brown with conspicuous lighter midrib and very narrow hyaline margin; pistillate spikes 1–3, slightly separate, drooping on very slender smooth peduncles (slightly dilated upward), from slightly shorter than to three times length of spike, the spikes oblong, 1–2.5 cm. long, 5–8 mm. wide, occasionally somewhat staminate at apex, the perigynia 8–30, appressed, rather closely packed but in few rows; lowest bract leaflet-like, narrow, 2–6 cm. long, but shorter than inflorescence, sheathless or very short-sheathing, its auricles prominent, brownish, the upper much reduced; scales ovate to suborbicular, with prominent mid-nerve, short-tapering or rounded at apex, cuspidate to acutish, brown or yellowish-brown or reddish-brown or purplish-brown, with green or lighter 1–3-nerved center, wider than and from about length of to somewhat longer than perigynia but not or but little enveloping them towards base, persistent; perigynia broadly ovoid, 2.5–4 mm. long, 2 mm. wide, compressed-triangular, thick but flattened and two-edged (the margins thick), prominently few- to several-nerved on each face, glaucous-green, coriaceous, strongly papillate, rounded-truncate and substipitate at base, rounded and minutely beaked at apex with entire or emarginate orifice, but often tipped by the persistent style; achenes triangular, oblong-obovoid, 2.25 mm. long, 1.8 mm. wide, in lower half of perigynium, rather closely enveloped, dark-brown, sessile, apiculate, jointed with style; style short, not enlarged at base, exserted, at length deciduous; stigmas 3, slender, long.

TYPE LOCALITY: "Habit in Europae frigidae paludibus sylvaticis."

DISTRIBUTION: Sphagnum bogs, acid conditions, Labrador and Newfoundland to Yukon, and southward to southern Delaware, Iowa, Montana, and California, mostly in glacial regions; also widely distributed in the cooler portions of Eurasia. (Specimens examined from Labrador, Newfoundland, Prince Edward Island, Quebec, Nova Scotia, New Brunswick, Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Ontario, Michigan, Ohio, Indiana, Wisconsin, Minnesota, Iowa, Saskatchewan, Alberta, Montana, California, Oregon, Washington, Vancouver, British Columbia, Yukon.)

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 734;* ed. 2. *f. 1036;* Rob. & Fern. Man. *f. 467;* Engler, Pflanzenreich 4^{20}: 503. *f. 80, E–G;* Rep. N. J. Mus. **1910**: *pl. 23, f. 5;* Boott, Ill. Carex 78. *pl. 216;* Fl. Dan. *pl. 646;* Jour. Russe Bot. **1911**: 143. *f. 118;* Sturm, Deuts. Fl. **53**: *pl. 7;* Reichenb. Ic. Fl. Germ. **8**: *pl. 238, f. 592;* Ostenf. Fl. Arct. 68. *f. 39;* Anderss. Cyp. Scand. *pl. 7, f. 73;* Willd. Fl. Berol. *pl. 1, f. 4;* Engl. Bot. *pl. 2043;* ed. 2. *pl. 1647;* Benth. Handb. Brit. Fl. ed. 2. *f. 1131;* Coste, Fl. Fr. . *3883;* Hegi, Ill. Fl. Mittel-Eur. *pl. 49, f. G;* Hallier, Deuts. Fl. *pl. 435;* Karst. Deuts. Fl. 351. *f. 177*(*5*); Lindm. Bild. Nord. Fl. *pl. 436B;* Abrams, Ill. Fl. Pacif. St. *f. 794.*

408. **Carex paupercula** Michx. Fl. Bor. Am. **2**: 172. 1803.

Carex limosa var. *irrigua* Wahl. Sv. Vet.-Akad. Nya Handl. **24**: 162. 1803. (Type from northern Sweden.)

Carex limosa var. *irrigata* Wahl. Fl. Lapp. 243. *pl. 15, f. 2.* 1812. (Type from Lapland.)

"*Carex lenticularis* Michx." Dewey, Am. Jour. Sci. **7**: 273. 1824.

Carex irrigua Smith; Hoppe, Caric. Germ. 72. 1826. (Based on *C. limosa* var. *irrigua* Wahl.)

Carex abjiciens Steud. Syn. Cyp. 209. 1855. (Type from "Missouri," identified by L. H. Bailey.)

"*Carex magellanica* Lam." Boott, Ill. Carex 80. *pl. 219, 220.* 1860.

Carex planifolia Kohts, Oesterr. Bot. Zeits. **20**: 141. 1870. (Type from Tirol.)

Carex limosa var. *subalpina* Brügger, Fl. Chur. 53. 1874. (Type from central Europe.)

Carex limosa var. *humilior* St.-Lag. in Cariot, Étud. Fl. ed. 8. **2**: 857. 1889. (Based on *C. irrigua* Smith.)

Carex Gentiliana H. Lév.; Lév. & Vaniot, Bull. Acad. Géogr. Bot. **10**: 221. 1901. (Type from Japan.)

Carex magellanica var. *planitiei* Asch. & Graebn. Syn. Mitteleur. Fl. 2^{2}: 132. 1902. (Type from eastern Prussia.)

Carex paupercula var. *irrigua* Fernald, Rhodora **8**: 76. 1906. (Based on *C. limosa* var. *irrigua* Wahl.)

Carex paupercula var. *pallens* Fernald, Rhodora **8**: 77. 1906. (Type from North Sydney, Nova Scotia.)

Carex paupercula var. *brevisquama* Fernald, Rhodora **20**: 152. 1918. (Type from Charlevoix Co., Quebec.)

Loosely cespitose, usually forming medium-sized clumps from much branched, slender, short to elongate rootstocks, the culms slender, erect, 1–8 dm. high, exceeding the leaves, sharply triangular, from smooth to strongly roughened above, purplish-brown at base and conspicuously clothed with the dried-up leaves of the previous year; leaves with well-developed blades 3–12 to a fertile culm, on the lower half, the blades deep-green, erect, not thick or stiff, flat with slightly revolute margins, 5–20 cm. long, 2–4 mm. wide, somewhat roughened towards apex, the sheaths very thin and hyaline ventrally, faintly to strongly red-dotted, concave at mouth, the ligule prominent; terminal spike staminate, but at times developing a few perigynia above, long-peduncled, usually erect, linear, 7–15 mm. long, 2–4 mm. wide, the scales loose, oblanceolate or obovate, cuspidate to obtuse, very variable in color, the body yellowish-brown to dark-brown with green or lighter midrib; lateral spikes 1–4 (usually 2 or 3), pistillate or with very few staminate flowers at base, approximate, drooping or somewhat erect on slender smooth peduncles (slightly dilated upward) from as long as to four times their length, 4–22 mm. long, 4–8 mm. wide, suborbicular to oblong, the perigynia 5–20, ascending, rather closely packed but in few rows; lowest bract leaf-like, slightly sheathing and darkened at base, erect, equaling or exceeding inflorescence, the upper reduced; scales lanceolate or ovate-lanceolate, tapering at apex, cuspidate, narrower and not covering but usually conspicuously longer (or rarely shorter) than perigynia, the center 3-nerved, prominent, the scales varying in color from castaneous throughout to green in center with broad brownish margins or castaneous below with greenish tips, deciduous before the perigynia and not enveloping them; perigynia pale or somewhat glaucous-green, broadly ovoid to broadly elliptic, 2.5–3 mm. long, 1.75–2.25 mm. wide, compressed-triangular, thick but flattened and 2-edged, coriaceous, densely papillate, prominently few-nerved on each face, rounded and obconic-stipitate at base, rounded at apex and scarcely beaked, the orifice entire or emarginate, often tipped by the style; achenes triangular, ovoid-oblong, 2 mm. long, 1.2 mm. wide, sessile, apiculate, jointed with the short, slender, at length deciduous, exserted style; stigmas 3, slender.

Type locality: "Hab. ad lacus Mistassins" (Quebec).

Distribution: Sphagnum bogs, acid conditions, Newfoundland to Alaska, and southward to Pennsylvania, Minnesota, Colorado, and Utah; also widely distributed in the cooler portions of Eurasia. (Specimens examined from Labrador, Newfoundland, Miquelon, Quebec, Prince Edward Island, Nova Scotia, New Brunswick, Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New York, Pennsylvania, Ontario, Michigan, Wisconsin, Minnesota, Saskatchewan, Alberta, Colorado, Utah, Mackenzie, Yukon, Alaska, Washington.)

Illustrations: Britt. & Brown, Ill. Fl. *f. 735;* ed. 2. *f. 1037;* Rob. & Fern. Man. *f. 466;* Engler, Pflanzenreich 4[20]: 503. *f. 80, H–K;* Fl. Dan. Suppl. *pl. 106;* Boott, Ill. Carex 80, in part. *pl. 219–220;* Jour. Russe Bot. **1911**: 143. *f. 119;* Hoppe, Deuts. Fl. **53**: *pl. 6;* Reichenb. Ic. Fl. Germ. **8**: *pl. 238, f. 593;* Ostenf. Fl. Arct. 67. *f. 37;* Am. Jour. Sci. **9**: *pl. A, f. 2* (as *C. lenticularis*); Anderss. Cyp. Scand. *pl. 7, f. 72;* Engl. Bot. Suppl. *pl. 2895;* ed. 2. *pl. 1648;* Coste, Fl. Fr. *f. 3882;* Hallier, Deuts. Fl. *pl. 433;* Wahl. Fl. Lapp. *pl. 15, f. 2.*

Note: The South American *Carex magellanica* Lam. (Encyc. **3**: 385. 1791), with which this has been confused, not only has the terminal spike normally gynaecandrous, but the perigynia are elliptic-ovoid and much narrower and longer in proportion in the only specimen (Chili, Valdivia, *Philippi*) with mature perigynia seen by me. They are like Boott's right-hand figure *b* (Ill. Carex *pl. 218*). Immature perigynia as drawn by Schkuhr (Riedgr. *pl. N, f. 51*) and by Boott (Ill. Carex *pl. 218*) are not characteristic. The scale and sheath distinctions made by Fernald (Rhodora **8**: 74, 75) I have not been able to follow.

409. Carex macrochaeta C. Meyer, Mém. Acad. St.-Pétersb. Sav. Étr. 1: 224. *pl. 13.* 1831.

Carex excurrens Cham.; Steud. Syn. Cyp. 228, as synonym. 1855.

"*Carex pulocarpa* R. Br." Dewey, Am. Jour. Sci. **29**: 251. *pl. Z, f. 83.* 1836; Boott, Ill. Carex **4**: 197, in part. 1867. (Plants from northwestern America.)

Carex macrochaeta var. *emarginata* Holm, Am. Jour. Sci. IV. **17**: 314. 1904. (Type from Kukak Bay, Alaska.)

Carex macrochaeta var. *macrochlaena* Holm, Am. Jour. Sci. IV. **17**: 315. 1904. (Type from St. Paul Island, Bering Sea.)

Carex Kühleweinii Gand. Bull. Soc. Bot. Fr. **66**: 295. 1920. (Type from Sitka, Alaska.)

Loosely cespitose in medium-sized clumps from densely matted, tough, scaly rootstalks, the culms 2–6 dm. high, slender, erect, or nodding at apex, sharply triangular, more or less strongly exceeding the leaves, smooth or slightly roughened above, aphyllopodic, strongly

purplish-red-tinged and fibrillose at base; leaves with well-developed blades 2–5 to a fertile culm, on the lower third or half, but not clustered, light-green, firm, the blades flat with revolute margins, 0.3–2 dm. long, 2–5 mm. wide, somewhat roughened towards the blunt-tipped apex; sterile culm-blades longer, 1.5–3 dm. long, long-attenuate, sheaths yellowish-brown-tinged ventrally, concave at mouth, strongly prolonged beyond base of blade, the ligule as long as wide; staminate spike usually solitary, peduncled, oblong-linear or narrowly oblong, 1.5–2.5 cm. long, 4–8 mm. wide, the scales oblong-obovate, blackish with minutely hyaline edge and conspicuous light-colored midrib strongly exserted at the bifid or emarginate apex as a slender rough cusp; anthers very conspicuous, 5 mm. long; pistillate spikes 2–4, more or less strongly separate, the upper erect and short-peduncled or nearly sessile, the lower varying from short-peduncled and erect to strongly (2–4 cm.) peduncled and drooping, the peduncles slender, smooth, the spikes oblong or oblong-cylindric, 1–3 cm. long, 6–8 mm. wide (without awns), closely flowered, containing 15–40 closely appressed perigynia in several rows; lower bract leaflet-like, shorter than or exceeding inflorescence, not sheathing, often dark-auricled; upper bracts reduced; scales ovate-oblong, black with slightly hyaline margins and whitish midrib, the midrib excurrent as a very slender rough cusp 2–12 mm. long from the emarginate or bifid apex, the scales slightly narrower and shorter than the perigynia; perigynia oblong-ovate or oblong-oval, much compressed, thin, 4.5–6 mm. long, 2 mm. wide, thin, membranaceous, minutely papillate, straw-colored, occasionally dark-blotched, obscurely slenderly nerved, substipitate, rounded at base and round-tapering at apex, abruptly very minutely (0.2 mm.) beaked, the orifice purplish, entire or very obscurely emarginate; achenes oblong-obovoid, 2–2.5 mm. long, 1–1.25 mm. wide, loosely enveloped in lower half of perigynium, triangular with sides concave below, short-stipitate, brownish, apiculate, jointed with the nearly straight, slender style; stigmas 3, reddish-brown, thickish towards base.

TYPE LOCALITY: "Habitat in Unalaschka."

DISTRIBUTION: Wet open places, Multnomah Falls, Oregon, northward along the coast mostly west of the mountains to the Aleutian and Pribilof Islands and southward on the Asiatic coast to Sakhalin; locally in the interior. A handsome plant and one of the most characteristic species of the Alaskan coast. (Specimens examined from Vancouver, Yukon, Alaska.)

ILLUSTRATIONS: Mém. Acad. St.-Pétersb. Sav. Étr. **1**: *pl. 13;* Am. Jour. Sci. **29**: *pl. Z, f. 83;* IV. **18**: 18. *f. d;* V. **3**: 142. *f. 1–9;* Engler, Pflanzenreich 4^{20}: 413. *f. 65, A–C;* Abrams, Ill. Fl. Pacif. St. *f. 795.*

60. **Atratae** Kunth, Enum. Pl. **2**: 431. 1837; Tuckerm. Enum. Caric. 12. 1843; Carey, in A. Gray, Man. 549. 1848; L. H. Bailey, Proc. Am. Acad. **22**: 76. 1886; Kükenth. in Engler, Pflanzenreich 4^{20}: 382. 1909; Mackenzie, Rydb. Fl. Rocky Mts. 136. 1917; Mackenzie, Erythea **8**: 67. 1922. MELANANTHAE Drejer, Symb. Car. 9. 1844; Holm, Am. Jour. Sci. IV. **16**: 457. 1903. NIGRAE O. F. Lang, Linnaea **24**: 566. 1851. CARICIGYNE ALPINAE and ATRATAE C. B. Clarke, Kew Bull. Add. Ser. **8**: 146. 1908. SCITAE Kükenth. in Engler, Pflanzenreich 4^{20}: 410. 1909. AEORASTACHYAE NESOPHILAE Holm, Am. Jour. Sci. IV. **49**: 431. 1920; Am. Jour. Sci. V. **3**: 138, et seq. 1922. Certain species belonging to this group are by L. H. Bailey (Proc. Am. Acad. **22**: 77. 1866) classed with the RIGIDAE Fries, and by Holm (Am. Jour. Sci. IV. **16**: 457. 1903) with the AEORASTACHYAE Drej. Treated as a genus Limivasculum, subgenus Hymenotheca by Börner (Abh. Nat. Ver. Bremen **21**: 269. 1913).

Culms aphyllopodic or phyllopodic; terminal spike gynaecandrous or staminate, the lateral 1–10 pistillate or with a few staminate flowers at base, from sessile, erect and closely approximate to long-peduncled, nodding and distant; bracts sheathless or nearly so, dark-colored at the base, the blades short; scales usually dark-tinged; perigynia membranaceous or more or less coriaceous, straw-colored or greenish, often strongly dark-tinged, elliptic to broadly obovate, circular in cross-section to much flattened, papillose to puncticulate; glabrous, abruptly short-beaked or beakless, the orifice entire or bidentate; achenes triangular, apiculate, jointed with the straight, slender, often exserted style; stigmas 3.

A group containing many species and strongly developed in the cooler and mountainous portions of the northern hemisphere, especially in North America and Asia. One species occurs in southern South America; and one is recorded, possibly erroneously, from Australia.

Culms central, arising from the midst of the persistent leaves of the previous year or their desiccated fragments (clothed at base with the dried-up leaves of the previous year, except in a few species with non-filamentose lower sheaths).
- Terminal spike in some plants pistillate and linear-oblong or cylindric or staminate only at apex; in others staminate.
  - Pistillate scales ovate or ovate-lanceolate, long-acute or acuminate, 2–3 times as long as the perigynia; perigynia obovoid, obtusely triangular, somewhat flattened on one side. 410. *C. idahoa.*
  - Pistillate scales orbicular to broadly ovate, obtuse to slightly mucronate, little exceeding the perigynia or at maturity slightly shorter; perigynia broadly obovoid to suborbicular, sharp-edged, plano-convex, becoming obtusely triangular at maturity. 411. *C. Hallii.*
- Terminal spike staminate or gynaecandrous, not pistillate and linear-oblong or cylindric.
  - Pistillate scales small, 1.5–2.5 mm. long, obtuse or acutish, or the lower acute, broadly ovate, broadly obovate, or orbicular; perigynia 2–2.5 mm. long (or up to 3.5 mm. in *C. Vahlii* and in *C. stylosa*).
    - Terminal spike gynaecandrous, or staminate and inconspicuous; perigynia obtusely triangular in cross-section; pistillate spikes short, peduncled or sessile.
      - Culms stiff, obtusely triangular; scales about covering perigynia, dark-reddish-brown, the midvein prominent; perigynia slightly ciliate at mouth, scarcely beaked. 412. *C. Parryana.*
      - Culms not stiff or somewhat stiff, sharply triangular above; scales much shorter than the perigynia, purplish-black, the midrib obsolete or obscure; beak of perigynium not ciliate at mouth.
        - Terminal spike gynaecandrous, conspicuous; stolons rather short; perigynia with short but prominent minutely bidentate beak. 413. *C. Vahlii.*
        - Terminal spike generally staminate, few-flowered and inconspicuous; stolons long and conspicuous; perigynia barely beaked, the orifice entire or nearly so. 414. *C. holostoma.*
    - Terminal spike staminate (or with a few perigynia), peduncled; lower pistillate spike on a peduncle as long to twice as long as spike; perigynia suborbicular or nearly so in cross-section, abruptly minutely beaked, the orifice entire; style prominently exserted. 415. *C. stylosa.*
  - Pistillate scales larger or sharp-pointed or both; perigynia 3 mm. or more long.
    - Terminal spike staminate.
      - Perigynia strongly flattened.
        - Leaves of fertile culms widely separate, only the upper 2–4 blade-bearing, the lower bladeless; culms strongly aphyllopodic and purplish-tinged at base; leaves of the previous year not persistent or much desiccated at flowering time.
          - Staminate and pistillate scales obtuse to acute, the midvein nearly or quite obsolete or inconspicuous; perigynia 2-ribbed (the marginal), otherwise nerveless; achenes slenderly long-stipitate. 416. *C. montanensis.*
          - Staminate and pistillate scales with conspicuous midvein usually more or less excurrent as a short cusp; perigynia granular-roughened, marginally 2-ribbed and very obscurely nerved; achenes short-stipitate. 417. *C. spectabilis.*
        - Leaves many on lower third of culms; culms clothed at base with dried-up leaves of previous year, not purplish-tinged at base.
          - Perigynia smooth, light-green, concealed by scales; midvein of scales prominent; pistillate spikes linear. 418. *C. nesophila.*
          - Perigynia granular-roughened, darker, prominent in the spikes; midvein of scales nearly obsolete; pistillate spikes short-oblong to cylindric. 419. *C. podocarpa.*
      - Perigynia nearly round or obtusely triangular in cross-section, little or not at all flattened.
        - Lower sheaths not breaking ventrally and becoming filamentose; perigynia membranaceous, nearly round in cross-section, 3.5–4.5 mm. long. 420. *C. Raynoldsii.*
        - Lower sheaths breaking ventrally and becoming filamentose; perigynia subcoriaceous, obtusely triangular in cross-section, 2.75–3.5 mm. long. 421. *C. aboriginum.*
    - Terminal spike gynaecandrous, the terminal flowers pistillate.
      - Pistillate scales abruptly slender-awned. 422. *C. Gmelini.*
      - Pistillate scales not slender-awned.
        - Perigynia sub-inflated-triangular, scarcely compressed.

Perigynia subcoriaceous; rootstocks long-creeping; leaf-blades very smooth. 423. *C. leiophylla.*
Perigynia membranaceous; rootstocks short-creeping or cespitose; leaf-blades roughened towards apex.
Spikes closely contiguous, forming a dense head; perigynia with conspicuous beak 1 mm. long. 424. *C. Nelsonii.*
Spikes or lower spike strongly peduncled, distant; perigynia abruptly minutely beaked. 425. *C. atrosquama.*
Perigynia strongly compressed.
Spikes 3–6, not oblong-cylindric; walls of perigynia not papery; perigynia 2.5–4.5 mm. long, nerveless or obscurely nerved on face, dull-green to brownish-black.
Perigynia not granular-roughened (under a lens), the margin (at least) green or whitish-green.
Spikes contiguous, sessile or nearly so, forming a dense head; scales lanceolate, strongly exceeding perigynia; culms stiff, erect. 426. *C. Helleri.*
Spikes or lower spike more or less peduncled, usually distant, erect or nodding; scales wider, shorter than or about equaling perigynia; culms more slender.
Lateral spikes oblong or ovoid, pistillate, erect on stiff peduncles.
Scales with midvein largely obsolete; mature perigynia 3.5–4.5 mm. long, wider on either side than the achene, the latter on a stipe of nearly its own length; sheaths not purplish-tinged ventrally. 427. *C. epapillosa.*
Scales with prominent midvein; mature perigynia 3.5 mm. long, narrower on either side than the achene, the latter much longer than its stipe; sheaths normally purplish-tinged ventrally. 428. *C. heteroneura.*
Lateral spikes linear, gynaecandrous, the lower nodding on long slender peduncles. 429. *C. bella.*
Perigynia granular-roughened (under a lens) especially on the upper margins, yellowish-brown or dark-tinged.
Spikes contiguous, sessile or short-peduncled, forming a dense head; culms stiff, erect.
Lowest spike slightly separate, short-peduncled; scales purplish-black with very conspicuous white-hyaline apex and upper margins. 430. *C. albo-nigra.*
Spikes very densely aggregated, sessile; scales purplish-black with very inconspicuous hyaline upper margins. 431. *C. nova.*
Spikes or lowest spike strongly peduncled, usually distant, erect or nodding.
Perigynia wide-margined, the margins as wide as the achene; lateral spikes linear-oblong, oblong, or ovoid.
Upper pistillate scales exceeding the perigynia; lateral spikes ovoid; lowest peduncle less than the length of its spike. 432. *C. chalciolepis.*
Upper pistillate scales exceeded by the perigynia; lateral spikes oblong or linear-oblong; lowest peduncle 1–2 times as long as its spike. 433. *C. atrata.*
Perigynia sharp-edged, the margins much narrower than the achene; lateral spikes linear. 434. *C. atratiformis.*
Spikes 6–10, oblong-cylindric; perigynia 5 mm. long, lightly 3-nerved, light-green, the walls papery; scales much shorter than perigynia. 435. *C. Mertensii.*
Culms lateral, arising from without the tufts of leaves of the previous year and not clothed at base with the dried-up leaves of the previous year, aphyllopodic, the lower sheaths breaking ventrally and conspicuously filamentose.
Terminal spike staminate or with perigynia in the middle; perigynia not glaucous or light-green, the beak bidentate, the teeth hispidulous within; perigynia usually exceeding the scales. 436. *C. serratodens.*
Terminal spike gynaecandrous; perigynia glaucous or light-green, the beak minutely bidentate, the teeth not hispidulous within; scales usually strongly exceeding the perigynia. 437. *C. Buxbaumii.*

410. **Carex idahoa** L. H. Bailey, Bot. Gaz. **21**: 5. 1896.

Rootstocks not seen, the culms 2–3.5 dm. high, central, slender but strict, somewhat fibrillose but not filamentose at base, much exceeding the leaves, obtusely triangular, but slightly roughened above, phyllopodic, more or less purplish-brown-tinged at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 5–10 to a fertile culm, clustered just above the base, not septate-nodulose, the blades light-green, thin, flat with somewhat revolute margins, 3–20 cm. long, 2–4 mm. wide, somewhat roughened towards the apex, long-attenuate, the sheaths very thin and white-hyaline ventrally, concave at mouth, the ligule about as long as wide; spikes usually 3, frequently all pistillate, linear-oblong or cylindric, erect on short, stiff, scabrous peduncles, approximate, forming a narrow head 3.5–5 cm. long, the lateral spikes 1–2 cm. long, 4–6 mm. wide, the terminal 2–3 cm. long, 6–8 mm. wide, the perigynia numerous, appressed-ascending in few rows; bracts sheathless, usually less than 1 cm. long and much shorter than the subtended spikes; pistillate scales ovate or ovate-lanceolate, long-acute or acuminate, brown with conspicuous lighter center and very narrow hyaline margins, wider than and 2–3 times as long as the perigynia; perigynia obovoid, somewhat flattened on one side, obtusely triangular, not inflated, 3 mm. long, 1.5 mm. wide, glabrous, membranaceous, puncticulate, 2-ribbed, otherwise nerveless or nearly so, tapering to base, substipitate, the body yellowish-green, rounded and abruptly short-beaked at apex, the beak purplish, 0.5 mm. long, emarginate to shallowly bidentate; achenes obovoid, 2 mm. long, 1.35 mm. wide, very closely enveloped, triangular with concave sides, tapering to base, sessile, brownish, granular, abruptly apiculate, jointed with the short style; stigmas 3, blackish, slender, short.

TYPE LOCALITY: Beaver Cañon, Idaho (*Rydberg 2339*).
DISTRIBUTION: Mountain meadows, Montana and Idaho. (Specimens examined from Idaho and Montana.)

411. **Carex Hallii** Olney; Porter, Rep. U. S. Geol. Surv. Terr. **5**: 496. 1872.

Carex Parryana var. *unica* L. H. Bailey, Mem. Torrey Club **1**: 54. 1889. (Based on *C. Hallii* Olney.)
Carex Parryana var. *Hallii* Kükenth. in Engler, Pflanzenreich **4**[20]: 388. 1909. (Based on *C. Hallii* Olney.)
Carex Elrodi M. E. Jones, Bull. Univ. Mont. 61: 70. 1910. (Type from Monida, Montana.)

Loosely cespitose and stoloniferous, the stolons long, slender, horizontal, scaly, the clumps small, the culms 1–6 dm. high, central, slender but stiff, papillose, usually strongly exceeding the leaves, obtusely triangular, smooth or nearly so, phyllopodic, reddish-purple and more or less fibrillose at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades usually 5–12 to a fertile culm, clustered near the base, not septate-nodulose, the blades erect, ascending or spreading, light-green, thin but stiff, flat with revolute margins, usually 5–20 cm. long, 2–4 mm. wide, strongly roughened towards the apex, very long-attenuate, the sheaths thin and white-hyaline ventrally, concave at mouth, the ligule about as long as wide; spikes 1–5, often all pistillate, the terminal when staminate erect, usually short-peduncled, linear, 1.5–2.5 cm. long, 2.5–4 mm. wide, the scales oblong-obovate, obtuse, reddish-brown with lighter midrib and conspicuous white scarious margins; pistillate spikes (often only one) contiguous or the lowest slightly separate, erect, the lower and uppermost short-peduncled, the middle nearly sessile, the lateral short-oblong to linear-oblong, 6–30 mm. long, 3–5 mm. wide, the terminal linear-oblong, densely flowered, containing 10–100 appressed-ascending perigynia in several rows; lowest bract leaflet-like, shorter than the head, the upper much reduced, all with darker-colored auricles at base or slightly (1–3 mm.) sheathing; scales orbicular to broadly ovate, very obtuse to slightly mucronate, brownish-purple with lighter midrib and conspicuous white scarious margins, wider and a little longer than and concealing the perigynia or at maturity slightly shorter; perigynia plano-convex, thick, with broadly obovoid or suborbicular body, becoming obtusely triangular by ripening achene, not inflated, 2–3 mm. long, 2 mm. wide, membranaceous, puncticulate, glabrous, the upper margins spar-

ingly scabrous, light-green or whitish, often dark-purple-tinged towards tip, sharp-edged, 2-ribbed, otherwise nerveless or lightly few-nerved dorsally, rounded at base, short-stipitate, rounded at apex and abruptly minutely beaked, the beak 0.3 mm. long, bidentulate, hyaline and ciliate at mouth; achenes obovoid, closely enveloped, filling perigynium, 1.75–2 mm. long, 1.5 mm. wide, triangular with slightly concave sides, sessile, brownish, slightly granular, strongly apiculate, jointed with the short, more or less exserted style; stigmas 3, slender, short, brownish.

TYPE LOCALITY: Pleasant Valley, Idaho.
DISTRIBUTION: Mountain meadows, Hudson Bay to North Dakota, Colorado, and Alberta. (Specimens examined from Manitoba, North Dakota, South Dakota, Alberta, Montana, Wyoming, Colorado.)
ILLUSTRATION: Bull. Univ. Mont. 61: *pl. 3* (right-hand figure).
NOTE: The perigynia in this species are more beaked than in *Carex Parryana* Dewey, the achenes are sessile and the style is shorter. It is a plant of more southern range than that species.

412. **Carex Parryana** Dewey, Am. Jour. Sci. **27**: 239. *pl. U, f. 65.* 1835.

Carex arctica Dewey, Am. Jour. Sci. **27**: 239. *pl. U, f. 66.* 1835. (Type from Carleton House, Saskatchewan.) Not *C. arctica* Deinb. 1842.
Carex Parryana var. β Torr. Ann. Lyc. N. Y. **3**: 426. 1836. (Based on *C. arctica* Dewey.)

Very loosely cespitose and stoloniferous, the stolons long, slender, horizontal, scaly, the clumps small, the culms 1.5–4 dm. high, central, slender, stiff, papillose, usually strongly exceeding the leaves, obtusely triangular below, smooth, or slightly roughened above, phyllopodic, reddish-purple and scarcely fibrillose at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades usually 5–12 to a fertile culm, clustered near the base, not septate-nodulose, the blades erect or ascending, light-green, thin but stiff, flat with revolute margins, 5–30 cm. long, 2–3 mm. wide, roughened towards the apex, long-attenuate, the sheaths very thin and white-hyaline ventrally, concave at mouth, the ligule about as long as wide; spikes 3–5, the lateral pistillate, the terminal gynaecandrous (sometimes nearly staminate), more or less strongly separate or the upper approximate, erect, linear, 0.7–2 cm. long, 3 mm. wide, the lower short-peduncled, the upper sessile, closely 7–20-flowered in few rows, the perigynia closely appressed; lowest bract usually shorter than the head, not sheathing or but short-sheathing, purplish-red-tinged at base, the upper much smaller; scales small, 2–2.5 mm. long, persistent, dark-reddish-brown, with green midvein prominent to apex, and conspicuous white-hyaline margins, suborbicular, obtuse or short-mucronate, as wide as and about length of perigynia and concealing them; perigynia broadly obovoid, unequally triangular and sharp-edged before maturity, obtusely triangular at maturity, not inflated, 2–2.5 mm. long, 1–1.5 mm. wide, glabrous, membranaceous, puncticulate, straw-colored, purplish-tinged and rough-granular towards apex, 2-ribbed (the marginal), otherwise nerveless or nearly so, short-tapering and short-stipitate at base, tapering or somewhat rounded at apex and scarcely beaked, the beak 0.1–0.2 mm. long, bidentulate, hyaline and slightly ciliate at mouth; achenes obovoid, very closely enveloped, filling perigynium, 1.5–1.75 mm. long, 1–1.25 mm. wide, triangular with slightly concave sides, shortly stipitate, brownish, slightly granular, strongly apiculate, jointed with the slender more or less prominently exserted style; stigmas 3, slender, short, brownish.

TYPE LOCALITY: "Hudson's Bay" Manitoba (*Dr. Richardson*).
DISTRIBUTION: Plains and openings, Manitoba to Alberta and Mackenzie. (Specimens examined from Alberta, Saskatchewan, Mackenzie.)
ILLUSTRATIONS: Am. Jour. Sci. **27**: *pl. U, f. 65, 66;* Britt. & Brown, Ill. Fl. *f. 717;* ed. 2. *f. 1041;* Boott, Ill. Carex 28. *pl. 71.*

413. **Carex Vahlii** Schkuhr, Riedgr. 87. 1801.

Carex Halleri Gunn. Fl. Norv. **2**: 106. 1772. (In part; as to Fl. Dan. *pl. 403,* not as to type.)
Carex alpina Lilj. Sv. Fl. ed. 2. 26. 1798. (Type from Lapland, Swartz not given as author.) Not *C. alpina* Schrank, 1787; nor *C. alpina* Honck. 1792.
Carex alpina var. *inferalpina* Wahl. Fl. Lapp. 241. 1812. (Type from Lapland.)
Carex media R. Br.; Richards. in Frankl. Journey 763. 1823. (Type from 54°–64°, northwestern Canada.)

Carex alpina var. *heterostachya* Anderss. Cyp. Scand. 39. 1849. (Type from northwestern Europe.)
Carex alpina var. *nigrescens* Anderss. Cyp. Scand. 39. 1849. (Type from northwestern Europe.)
Carex Angarae Steud. Syn. Cyp. 190. 1855. (Type from the Angara river, Siberia; doubtfully referred here.)
"*Carex sabulosa* Turcz." Freyn, Oesterr. Bot. Zeits. **46**: 132. 1896. (Plant from Transbaikalia.)
Carex alpina var. *Stevenii* Holm, Am. Jour. Sci. IV. **16**: 21, 27. 1903. (Type from Colorado.)
Carex alpina f. *nigrescens* "Anderss." Kükenth. in Engler, Pflanzenreich **4**[20]: 386. 1909. (Based on *C. alpina* var. *nigrescens* Anderss.)
Carex alpina f. *robustior* Kükenth. in Engler, Pflanzenreich **4**[20]: 386. 1909. (Type from Switzerland.)
Carex alpina f. *inferalpina* "Wahl." Kükenth. in Engler, Pflanzenreich **4**[20]: 386. 1909. (Based on *C. alpina* var. *inferalpina* Wahl.)

Loosely cespitose and stoloniferous, the stolons rather short, slender, scaly, the clumps small or medium-sized, the culms 2–8 dm. high, central, slender, not stiff, erect to decumbent, sharply triangular above, smooth or slightly roughened on the angles above, much exceeding the leaves, phyllopodic, purplish-red-tinged at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 8–15 to a fertile culm, chiefly bunched above the base, not septate-nodulose, the blades light-green, thin, erect or spreading, flat with slightly revolute margins, 5–15 cm. long, 2–3 mm. wide, long-attenuate, roughened on the margins, especially towards the apex, the sheaths hyaline ventrally, concave at mouth, the ligule very short, much wider than long; spikes usually 3, the lateral pistillate, the terminal conspicuous, gynaecandrous, closely aggregated or approximate, erect, short-oblong to suborbicular, 4–8 mm. long, 3–4.5 wide, the lower short-peduncled, the upper sessile, closely flowered, the 8–25 perigynia ascending in several rows; lowest bract usually shorter than the head, not or but very little sheathing, slightly darkened at base, the upper much smaller; a larger bract occasionally developed shortly below the inflorescence; scales small, 1.5–2.5 mm. long, long persistent, purple-black, the staminate ovate-lanceolate, acutish, with lighter midrib and white-hyaline margins, the pistillate broadly ovate, acutish or obtuse, the midrib obsolete or nearly so, the margins white-hyaline, nearly as wide as but much shorter than the perigynia; perigynia obovoid or oblong-obovoid, 2–3.5 mm. long, 1.25 mm. wide, obtusely triangular, slightly inflated, membranaceous, yellowish-green becoming yellowish-brown, granular and strongly puncticulate, glabrous, 2-ribbed, otherwise nerveless, tapering at base, sessile, sometimes slightly serrulate, rounded and abruptly beaked above, the beak short (0.5 mm. long) but prominent, minutely bidentate, purplish-tinged, not ciliate at mouth, achenes obovoid, 1.75 mm. long, 1 mm. wide, rather loosely enveloped in lower part of perigynium-body, triangular with concave sides, yellowish-brown, granular, substipitate, abruptly apiculate, jointed with the slender, short, more or less exserted style; stigmas 3, slender, blackish, short.

TYPE LOCALITY: "In alpibus Norvegiae rarius, *e.g.* in Söder Ranen." (Oeder, Fl. Dan. *pl. 403.*)
DISTRIBUTION: Dry sunny places, in calcareous districts, Greenland and Newfoundland to Alaska, southward to Ontario and Wisconsin, and in the mountains to New Mexico; widely distributed in arctic-alpine Eurasia. (Specimens examined from Greenland, Labrador, Newfoundland, Quebec, Keewatin, Ontario, Wisconsin, Minnesota, Manitoba, Saskatchewan, Mackenzie, Yukon, Alberta, South Dakota, Montana, Idaho, Wyoming, Utah, Colorado, New Mexico.)
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 714;* ed. 2. *f. 1039;* Rob. & Fern. Man. *f. 428;* Schkuhr, Riedgr. *pl. G, f. 94; pl. Ppp, f. 154;* Engler, Pflanzenreich **4**[20]: 385. *f. 60, A–E;* Boott, Ill. Carex 112. *pl. 356, 357;* Fl. Dan. *pl. 403;* Jour. Russe Bot. **1911**: 100. *f. 79;* Clements, Rocky Mt. Fl. *pl. 45, f. 8;* Am. Jour Sci. IV. **23**: 425. *f. 13;* Ostenf. Fl. Arct. 63. *f. 31;* Reichenb. Ic. Fl. Germ. **8**: *pl. 235, f. 588;* Anderss. Cyp. Scand. *pl. 6, f. 66;* Coste, Fl. Fr. *pl. 3843;* Benth. Handb. Brit. Fl. ed. 2. *f. 1113;* Engl. Bot. Suppl. *pl. 2666;* ed. 2. *pl. 1636;* Hegi, Ill. Fl. Mittel-Eur. **2**: 84. *f. 230;* Gmel. Fl. Sib. **1**: *pl. 31, f. 1* (doubtful).

NOTE 1: The name *Carex alpina* is attributed to Swartz by Wahlenberg (Sv. Vet.-Akad. Nya Handl. **24**: 160. 1803) and by Andersson (Cyp. Scand. 39. 1849), but there is nothing in the original publication to bear this out.

NOTE 2: *Carex Halleri* Gunner (Fl. Norv. **2**: 106. 1772) is based upon Haller's *no. 1356* (Hist. Stirp. Ind. Helv. **2**: 184. 1768), upon a species of Scheuchzer (Agrost. 493. *pl. 11, f. 8.* 1719) and upon Flora Danica (**7**: 8. *pl. 405.* 1768). Haller's polynomial name enlarged by the word *androgyna* from his text is given. The habitat is given as "in alpibus" of Norway, as given in the Flora Danica. In the Flora Danica Haller and Scheuchzer are both cited and there is no original description. The Norwegian plant of the Flora Danica is *C. alpina* Lilj. Haller's plant from which the name is taken and which should be regarded as the type, is entirely different. His description says "spica ex tribus composita congestis . . . . androgynae omnes . . . . glumae mucronatae . . . . capsulae . . . . mucrone longiusculo, simplici." It is compared with a figure in Micheli (Nov. Pl. Gen. 68. No. 5. *pl. 33, f. 6.* 1729) and with Scheuchzer's figure referred to above. It is doubtfully referred to *C. approximata* Hoppe by Gaudin (Agrost. Helv. **2**: 107. 1811; Fl. Helv. **6**: 54. 1830). The description does not apply to this, but it does seem to me to well answer an immature specimen of the mountain form of *C. leporina* L. (Kükenthal, Pflanzenreich **4**[20]: 211. 1909), as do

the figures of Micheli and Scheuchzer. I cannot find any other Swiss sedge to which it does apply. I am therefore treating *C. Halleri* as a synonym of *C. leporina* L. or one of its varieties and as typified by Haller's *no. 1356*, from which the name came.

414. **Carex holostoma** Drejer, Nat. Tidssk. 3: 449. 1841.

Carex alpina var. *holostoma* L. H. Bailey, Proc. Am. Acad. 22: 76. 1886. (Based on *C. holostoma* Drejer.)

Loosely cespitose and stoloniferous, the stolons long and conspicuous, slender, horizontal, the culms 1–2 dm. high, central, sharply triangular, somewhat stiffly erect, smooth, shorter than or exceeded by the leaves, phyllopodic, purplish-red-tinged at base, the dried-up leaves of the previous year conspicuous, leaves with well-developed blades 6–10 to a fertile culm, bunched towards the base, not septate-nodulose, the blades 5–20 cm. long, 1.5–2 mm. wide, light-green, thin, erect, flat with revolute margins, long-attenuate, little roughened except at apex, the sheaths thin and yellowish-brown-tinged ventrally, concave at mouth, the ligule longer than wide; terminal spike generally staminate, sessile, inconspicuous, overtopped and largely hidden by the contiguous pistillate spikes, linear, 3–8 mm. long, 2 mm. wide, few-flowered, the scales ovate or obovate, acute or obtuse, purplish-black with inconspicuous lighter midvein and conspicuously white-hyaline margins above; pistillate spikes 1–3 (usually 2), erect, sessile or short-peduncled, aggregated or the lower more or less remote and more or less strongly peduncled, linear, linear-oblong, or short-oblong, 6–10 mm. long, 3–4 mm. wide, closely flowered, the perigynia 10–30, appressed-ascending in several rows; bracts sheathless, black-auricled, the upper reduced and squamiform, that of the remote spike (when present) leaflet-like and shorter or longer than the inflorescence; scales small, 1.5–2.5 mm. long, broadly ovate, broadly obovate, or suborbicular, obtuse or the upper acute, purplish-black with obscure lighter midvein and narrow white-hyaline apex, as wide (at base) but shorter than the mature perigynia; perigynia obovoid, slightly inflated, obtusely suborbicular-triangular in cross-section, 2–2.5 mm. long, 1.5 mm. wide, membranaceous, densely granular, not serrulate, very obscurely few-nerved, straw-colored below, purplish-black-tinged above, tapering at base, sessile or nearly so, truncately or abruptly contracted into a very minute nearly entire beak 0.1 mm. long; achenes obovoid, 1.5 mm. long, 1 mm. wide, nearly filling perigynium, triangular with concave sides, granular, yellowish-brown, sessile, abruptly apiculate, jointed with the very short, black, more or less exserted style; stigmas 3, slender, blackish, short.

TYPE LOCALITY: "In locis humidis ad radices montium Groenlandiae occidentalis (69°–71° L. B.) legit *J. Vahl.*" (Fl. Dan. *pl. 2428.*)

DISTRIBUTION: Keewatin, West Coast of Greenland between 68° 21′ and 70° 20′; extreme northern Norway and Lapland. (Specimens examined from Chesterfield Inlet, Keewatin, Greenland.)

ILLUSTRATIONS: Engler, Pflanzenreich 4^{20}: 385. *f. 60, F, G;* Am. Jour. Sci. IV. **23**: 425. *f. 3–10;* Fl. Dan. *pl. 2428;* Ostenf. Fl. Arct. 63. *f. 32.*

415. **Carex stylosa** C. Meyer, Mém. Acad. St.-Pétersb. Sav. Étr. 1: 222. pl. 12. 1831.

Carex nigritella Drejer, Nat. Tidssk. **3**: 450. 1841. (Type from southern Greenland.)
Carex beringiana Cham.; Steud. Syn. Cyp. 229. 1855. (Type from Unalaska.)

Cespitose in large mats, the clumps dense, from stout, fibrillose, creeping rootstocks, the culms 1.5–5 dm. high, central, slender, depressed, papillose, much exceeding the leaves, sharply triangular, roughened above, phyllopodic, purplish-red-tinged and slightly fibrillose at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades usually 5–10 to a fertile culm, clustered near the base, the blades light-green, firm, erect or ascending, flat with slightly revolute margins, or channeled towards the base, papillose, usually 8–30 cm. long, 1.5–3 mm. wide, long-attenuate, much roughened towards the apex, the sheaths yellowish-brown-tinged ventrally, concave at mouth, the ligule as long as wide; terminal spike staminate or with a few perigynia, linear, 1–2 cm. long, 2–4 mm. wide, peduncled, the scales obovate, obtusish, dark-purplish with lighter center and hyaline margin at least at apex; pistillate spikes 2 or 3, approximate or the lower somewhat separate, erect, the lower on smooth peduncles

once to twice their own length, the upper shorter-peduncled or nearly sessile, oblong, 7–18 mm. long, 4.5–8 mm. wide, closely flowered, containing 10–40 ascending-spreading perigynia in several rows; lowest bract leaflet-like, sheathless, dark-auricled, usually much exceeded by inflorescence, the upper much reduced; scales 2–3 mm. long, ovate, obtuse or the lower acute, as wide as but shorter than the perigynia, purplish-black with lighter midrib extending to the apex and hyaline margins; perigynia oval or ovoid, suborbicular or nearly so in cross-section, 2.5–3.5 mm. long, 1.5–1.75 mm. wide, yellowish-brown and more or less purple-black-tinged, glabrous, puncticulate, papillose above, subcoriaceous, strongly 2-ribbed and nerveless or very obscurely nerved, tapering or rounded to a stipitate base, round-tapering and abruptly minutely beaked at apex, the beak very minute, 0.1–0.3 mm. long, the orifice entire, filled by the slender prominently exserted style 1 mm. long; achenes broadly elliptic or broadly ovoid or elliptic-quadrate, filling perigynium or nearly so, 1.5 mm. long and about 1.25 mm. wide, brownish, triangular with thick angles and sides concave below, truncate or rounded and broadly substipitate at base, truncate or rounded above and abruptly slender-apiculate, jointed with the straight or rarely bent slender style; stigmas 3, slender, short.

Type locality: Unalaska.

Distribution: Open places, arctic and subarctic coastal regions from Greenland to Alaska, and southward on the Atlantic coast to western Newfoundland and northeastern Quebec and on the Pacific coast to northwestern Washington; also very locally in extreme northern Eurasia. (Specimens examined from Greenland, Labrador, Newfoundland, northeastern Quebec, Alaska, British Columbia, Vancouver Island, Washington.)

Illustrations: Britt. & Brown, Ill. Fl. *f. 716;* ed. 2. *f. 1040;* Kunze, Suppl. Riedgr. *pl. 29;* Fl. Dan. *pl. 2369;* Boott, Ill. Carex 141. *pl. 454;* Jour. Russe Bot. **1911**: 105. *f. 87;* Am. Jour. Sci. IV. **23**: 425. *f. 11, 12;* Ostenf. Fl. Arct. 65. *f. 33.*

416. Carex montanensis L. H. Bailey, Bot. Gaz. 17: 152. 1892.

"*Carex fuliginosa* Schkuhr" Seem. Bot. Voy. Herald 42. 1852.
Carex venustula Holm, Am. Jour. Sci. IV. **17**: 304. 1904. (Type from Cook Inlet, Alaska.)
"*Carex podocarpa* R. Br." Kükenth. in Engler, Pflanzenreich **4**[20]: 411. 1909.

Loosely cespitose, the rootstocks more or less elongate, slender, brownish, the new shoots at the base of the old, the culms 1–5 dm. high, central, rather slender to base, stiff below, more or less nodding above, bluntly triangular, obscurely papillose, exceeding the leaves, little to strongly roughened above, reddish-purple-tinged and somewhat fibrillose, strongly aphyllopodic; sterile shoots elongate, aphyllopodic; leaves with well-developed blades usually 2–4 to a fertile culm, the upper much the longer, widely separate on lower third, not at all clustered, the blades erect, deep-green, thin but firm, flat, usually 0.5–1.5 dm. long (or up to 2.5 dm. on sterile shoots), 2–4 mm. wide, short-tapering, roughened towards apex, the sheaths rounded and smooth dorsally, reddish-brown-tinged ventrally, not at all filamentose, the lower sheaths long and conspicuous, the ligule conspicuous, much longer than wide; staminate spike solitary (or with an additional small sessile one at its base), erect, oblong or oblong-obovoid, slender-peduncled, 0.7–2.5 cm. long, 3–5 mm. wide, the scales oblong-obovate, obtuse, black, the lighter midrib inconspicuous, usually not extending to apex, the margins not hyaline; pistillate spikes 2 or 3, rarely 4, occasionally slightly staminate at apex, approximate or a little separate, drooping or weakly erect on slender, smooth peduncles from somewhat shorter than to twice the length of the spikes, the spikes oblong to linear-oblong, 1–2 cm. long, 4–6 mm. wide, closely flowered, the perigynia 15–30, appressed-ascending in several rows; bracts squamiform, sheathless, black-auricled, usually much shorter than culm; scales oblong-obovate, obtuse to acute, much shorter than to about length of but much narrower than perigynia, thin, closely appressed, black, the margins not hyaline, the midvein obsolete, or rarely with somewhat lighter midvein not extending to apex; perigynia oblong-ovate or elliptical, much flattened, 4 mm. long, 2 mm. wide, 2-ribbed (the marginal), otherwise nerveless, very membranaceous, granular, straw-colored at base, strongly blackish-tinged above, rounded at base, substipitate, round-tapering at apex and abruptly minutely beaked, the beak 0.25 mm. long, black, entire or becoming bidentulate; achenes triangular with concave sides, obovoid, one third to one fourth the width and about half the length of perigynium, minute, 1.5 mm. long, 0.75 mm. wide, slenderly

long-stipitate, brownish, apiculate, jointed with the slender, straight, short-exserted style; stigmas 3, slender, rather long.

TYPE LOCALITY: "Montana, Upper Marais Pass, *W. M. Canby*, Aug. 2, 1883 (*no. 350*) and along subalpine streams, Park County, *Frank Tweedy*, Aug. 5, 1887. Also on mountain slopes, Kootanie Pass, Rocky Mountains of British America, *John Macoun*, Aug. 9, 1883."

DISTRIBUTION: Meadows and along streams in the mountains, Alberta to southern Alaska, and southward to Montana and Idaho. (Specimens examined from Alberta, Montana, Idaho.)

ILLUSTRATION: Am. Jour. Sci. IV. **48**: 25. *f. 1–5* (*C. venustula* Holm).

417. **Carex spectabilis** Dewey, Am. Jour. Sci. **29**: 248. *pl. X, f. 76.* 1836.

Carex nigella Boott, in Hook, Fl. Bor. Am. **2**: 225. 1839. (Type from Columbia River.)
"*Carex podocarpa* R. Br." W. Boott, in S. Wats. Bot. Calif. **2**: 245. 1880.
Carex invisa L. H. Bailey, Proc. Am. Acad. **22**: 82. 1886. (Type from Summit Camp, California.)
Carex Tolmiei var. *nigella* L. H. Bailey, Mem. Torrey Club **1**: 47. 1889. (Based on *C. nigella* Boott.)
Carex Tolmiei var. *invisa* Kükenth. in Engler, Pflanzenreich **4**[20]: 412. 1909. (Based on *C. invisa* L. H. Bailey.)
"*Carex venustula* Holm" Mackenzie, in Rydb. Fl. Rocky Mts. 136. 1917.
Carex spectabilis f. *chrysantha* Holm, Am. Jour. Sci. IV. **49**: 202. 1920. (Type from Washington.)
Carex spectabilis f. *alpina* Holm, Am. Jour. Sci. IV. **49**: 202. 1920. (Type from Washington.)
Carex spectabilis var. *superba* Holm, Am. Jour. Sci. IV. **49**: 202. 1920. (Type from Alberta.)
Carex spectabilis var. *elegantula* Holm, Am. Jour. Sci. IV. **49**: 202. 1920. (Type from British Columbia.)
Carex spectabilis var. *gelida* Holm, Am. Jour. Sci. IV. **49**: 202. 1920. (Type from Alberta.)

Loosely cespitose, the clumps medium-sized from densely matted, stout, tough, strongly fibrous, short-branching rootstalks, the culms 2.5–9 dm. high, central, slender, erect, sharply triangular, smooth or slightly roughened above, papillose, more or less strongly exceeding the leaves, purplish-tinged at base, arising from the center of the tuft of dried-up leaves of the previous year, the lower culm-leaves very much reduced; sterile shoots aphyllopodic; leaves with well-developed blades 2–5 to a fertile culm, on the lower third or half, strongly separate, the blades flat with slightly revolute margins, usually 0.5–1.5 dm. long, 2–5 mm. wide, light-green, firm, papillose, short-tapering, somewhat roughened towards the apex, the sheaths very long, very fragile and more or less yellowish-brown-tinged and purplish-dotted ventrally, prolonged at mouth beyond base of blade, the ligule wider than long; sterile-culm blades much longer, 1.5–4 dm. long, and narrower, long-attenuate; staminate spike solitary or occasionally two, erect or sometimes drooping, the upper more or less peduncled, the second sessile, linear-oblong, 8–20 mm. long, 4–6 mm. wide, the scales oblong-obovate, blackish with conspicuous thick light-colored midrib more or less excurrent as a short cusp; pistillate spikes 2–4, more or less strongly separate, erect, the upper short-peduncled or nearly sessile, the lower more strongly peduncled, oblong or linear-oblong, 1–3 cm. long, 3.5–5 mm. wide, closely flowered, but little attenuate at base, containing 15–30 appressed perigynia in several rows; lower bract leaflet-like, shorter than or exceeding inflorescence, sheathless; upper bracts reduced, the auricles often dark-tinged; scales oblong-ovate, purplish-black with the margins slightly hyaline and with conspicuous, thick, whitish midvein prominent to apex and usually excurrent as a very short cusp, usually narrower and slightly shorter than the perigynia; perigynia oblong-elliptic or oblong-ovate, much flattened, 4–5 mm. long, 1.75–2 mm. wide, 2-ribbed (the marginal), otherwise very obscurely nerved, membranaceous, granular-roughened, light-green, strongly purplish-blotched, rounded and sessile at base, rounded at apex, abruptly tipped by an emarginate or bidentulate beak 0.5 mm. long; achenes linear-ovoid, 2.5 mm. long, 1 mm. wide, loosely enveloped in lower half of perigynium, triangular with blunt angles, light-brown, puncticulate, short-stipitate, apiculate-tipped, jointed with the straight slender style; stigmas 3, reddish-brown, slender, short.

TYPE LOCALITY: "Found in the arctic regions."

DISTRIBUTION: Mountains and meadows, from Yukon to Montana, and southward in the higher mountains to Tulare County, California. (Specimens examined from California, Oregon, Washington, British Columbia, including Vancouver Island, Montana, Alberta, Yukon.)

ILLUSTRATIONS: Am. Jour. Sci. **29**: *pl. X, f. 76;* IV. **18**: 17, 18. *f. A, a–c;* IV. **49**: 197. *f. 5–15;* Abrams, Fl. Pacif. St. *f. 796.*

418. Carex nesophila Holm, Am. Jour. Sci. IV. 17: 315. 1904.

Carex melastoma Fisch.; Boott, Ill. Carex 100, as synonym. 1860. (Plant from Bering Straits.)
Carex macrochaeta var. *subrigida* Kükenth.; J. M. Macoun, in D. S. Jordan, Fur Seals N. Pacif. 3: 573. 1899. (Type from St. Paul Island.)
Carex salina var. *tristigmatica* Kükenth. in Engler, Pflanzenreich 4[20]: 362, in part. 1909. (Type from St. Paul Island, Bering Sea.)
"*Carex salina* var. *thulensis* Th. Fries" Holm, Am. Jour. Sci. IV. 49: 439, as to plant described. 1920.

Loosely long-stoloniferous, the stolons slender, long-creeping, at length ascending, with light-brown scales breaking into numerous fibers; culms 1–4 dm. high, sharply triangular, papillose, smooth, stiff, mostly strongly exceeding leaves, phyllopodic, light-brownish at base, arising from the center of the 4–10 dried-up leaves of the previous year, the lower culm-leaves shorter than the upper; leaves with well-developed blades 3–5 to a fertile culm, clustered above the base, the blades flat with strongly revolute margins, mostly 1–3 dm. long, 2.5–6 mm. wide, smooth except at apex, stiff, thickish, papillose, short-tapering, the sheaths smooth, white-hyaline or yellowish-brown-tinged ventrally, the ligule wider than long; terminal spike staminate, sessile or short-peduncled, oblong-oblanceolate, 1–2 cm. long, 3–5 mm. wide, the scales oblong-obovate, obtuse or acute or slightly cuspidate, purplish-black with conspicuous 3-nerved narrow white center often excurrent as a short cusp; lateral spikes 3–5, erect, pistillate, linear-oblong, mostly 1–3 (0.5–3.5) cm. long, 4–5 mm. wide, densely flowered or somewhat loosely at base, the perigynia 15–40, appressed in several rows, the upper spikes sessile or short-peduncled, the lower on long stiff peduncles; bracts sheathless or nearly so, the lowest leaf-like, often dark-auricled, shorter or longer than the inflorescence, the upper bracts much reduced; scales obovate or oblong-obovate, largely concealing perigynia, purplish-black with conspicuous slender 3-nerved midvein, obtuse, acute, or the midrib often slightly excurrent as a very short awn; perigynia ovate or oblong-ovate, strongly flattened-triangular, 3–4.5 mm. long, 1.5–1.75 mm. wide, light-green, or brownish or purplish-black-tinged in age, membranaceous, puncticulate, smooth, very lightly 2-ribbed (the marginal) and 3-nerved on either face, round-truncate and substipitate at base, round-tapering and abruptly minutely beaked, the beak 0.25 mm. long, slender, smooth, slightly emarginate; achenes oblong-obovoid, normally triangular, 1.5 mm. long, 1 mm. wide, very short-stipitate, yellowish-brown, bluntly apiculate, jointed with the slender included style; stigmas normally 3, slender, rather short.

TYPE LOCALITY: St. Paul Island, Bering Sea (*James M. Macoun 16614, 16616*).
DISTRIBUTION: Islands off the coast of western Alaska and northeastern Asia. (Specimens examined from Alaskan islands.)
ILLUSTRATIONS: Am. Jour. Sci. V. 3: 142. *f. 10–12.*

419. Carex podocarpa R. Br.; Richards. in Frankl. Journey 751. 1824.

Carex Tolmiei Boott, in Hook. Fl. Bor. Am. 2: 224. 1839. (Type from Columbia River.)
Carex microchaeta Holm, Am. Jour. Sci. IV. 17: 305. 1904. (Type from Indian Divide, Yukon.)
Carex Paysonis Clokey, Am. Jour. Sci. V. 3: 89. 1922. (Type from Jackson's Hole, Wyoming.)

Very loosely cespitose in medium-sized or small clumps, the rootstocks long, scaly, fibrillose, tough but rather slender, branching, the culms 1.5–5 dm. high, stiff, erect, sharply triangular, smooth or a little roughened above, papillose, much exceeding the leaves, brownish-tinged and fibrillose at base, arising from the center of the dried-up leaves of the previous year, the lower culm-leaves little reduced; sterile shoots aphyllopodic; leaves with well-developed blades 8–15 to a fertile culm, clustered near the base, the blades flat with revolute margins, 3–25 cm. long, 2.5–5 mm. wide, light-green, firm, papillose, short-tapering, somewhat roughened towards the apex, the sheaths short, fragile and yellowish-brown-tinged ventrally, short-prolonged at mouth beyond base of blade, the ligule wider than long; sterile shoots with similar blades; staminate spikes 1 or 2, short-peduncled, oblong-clavate, 1.5–3 cm. long, 3–4.5 mm. wide, the scales oblong-oblanceolate to oblong-obovate, purplish-black with conspicuous, thick, light-colored midrib more or less exserted as a short cusp; pistillate spikes 2–6, more or less strongly separate, erect, the upper sessile or nearly so, the lower on slender peduncles somewhat shorter than the spikes, the spikes short-oblong to oblong-cylindric, rounded or slightly attenuate at base, 0.7–2.5 cm. long, 4–6 mm. wide, densely flowered, the 15–40 peri-

gynia appressed-ascending in several rows; bracts sheathless, dark-auriculate, the lower 1 or 2 leaflet-like, shorter than the inflorescence, the upper much reduced; scales ovate or ovate-lanceolate, slightly narrower and from slightly longer to slightly shorter than the perigynia, purplish-black with minutely hyaline margins and conspicuous, thick, whitish midvein usually prominent to apex, varying to nearly obsolete, more or less excurrent as a very short cusp, sometimes merely obtuse or acute; perigynia ovate, much flattened, 2–4 mm. long, 1.5–1.75 mm. wide, 2-ribbed (the marginal), faintly several-nerved, membranaceous, papillose, light-green, strongly purplish-blotched, rounded and sessile at base, round-tapering at apex, minutely abruptly beaked, the beak 0.2 mm. long, bidentulate, purple-tipped; achenes oblong-obovoid, 1.75 mm. long, 1 mm. wide, loosely enveloped in lower half or two thirds of perigynium, triangular, light-brown, puncticulate, short-stipitate, apiculate, jointed with the straight, slender style; stigmas 3, reddish-brown, slender, short.

TYPE LOCALITY: Lat. 64°–69° northwestern Canada.

DISTRIBUTION: Mountain meadows, Yukon to Oregon and Wyoming. (Specimens examined from Yukon, Washington, Oregon, Idaho, Montana, Wyoming.)

ILLUSTRATIONS: Am. Jour. Sci. V. **3**: *pl. 2, f. 7–12;* Jour. Russe Bot. **1911**: 108. *f. 90, f. 91* (as *C. macrochaeta*); Abrams, Ill. Fl. Pacif. St. *f. 797;* Hook. Fl. Bor. Am. *pl. 224.*

NOTE: As to *Carex podocarpa* R. Br. and *Carex Tolmiei* Boott see the views of Boott (Hook. Fl. Bor. Am. **2**: 224. *pl. 224.* 1839), Clarke (Jour. Linn. Soc. **35**: 403. 1903), and Holm (Am. Jour. Sci. IV. **48**: 17–20, 1919; **49**: 200–201. 1920).

420. **Carex Raynoldsii** Dewey, Am. Jour. Sci. II. **32**: 39. 1861.

Carex Lyallii Boott, Ill. Carex 150. *pl. 483.* 1867. (Type from east side of Cascade Mts.).

Loosely cespitose, the rootstocks stout, scaly, creeping, the culms stout, erect, stiff, 2–7.5 dm. high, rather sharply angled, usually exceeding the leaves, smooth or nearly so, phyllopodic, purplish-red-tinged at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades usually 5–10 to a fertile culm, clustered towards the base, the blades light-green, stiff, erect or ascending, flat with revolute margins, 5–20 cm. long, 3–8 mm. wide, attenuate, roughened towards the apex, the sheaths yellowish-tinged ventrally, concave at mouth, the ligule wider than long; terminal spike staminate, sessile or nearly so, linear, 1–2 cm. long, 3–4.5 mm. wide, the scales oblong-obovate, firm, obtuse or acutish, purplish-brown with lighter center and narrow hyaline margins; pistillate spikes 2–4, approximate or the lowest slightly separate, erect, the upper sessile or nearly so, the others more or less strongly peduncled, the peduncles nearly smooth, slender, stiff, the spikes oblong, 1–2 cm. long, 6–8 mm. wide, densely flowered, containing 15–40 ascending-spreading perigynia in several to many rows; bracts sheathless, dark-auricled, the lowest leaflet-like, about the length of the culm, the others much reduced; scales broadly ovate, dark-purplish-black with lighter-colored, often nearly obsolete midrib and very narrow hyaline margins, short-acute or cuspidate, about as wide below as but considerably exceeded by the perigynia; perigynia oblong-oval or oblong-obovoid, somewhat inflated, suborbicular in cross-section, 3.5–4.5 mm. long, 1.75–2 mm. wide, glabrous, puncticulate, subcoriaceous, 2-ribbed and strongly several-nerved, yellowish-green, becoming yellowish-brown, substipitate, round-tapering at base, rounded and abruptly contracted at apex into a minute, purple-tinged, entire or emarginate beak 0.5 mm. long; achenes obovoid, 2.25–2.5 mm. long; 1.5–1.75 mm. wide, nearly as wide as but shorter than perigynia, triangular with thick angles and sides concave below, substipitate, yellowish-brown, minutely granular, apiculate, jointed with the straight, slender, slightly exserted style; stigmas 3, slender, short.

TYPE LOCALITY: "Pierre's Hole, valley of Snake River, June 20, 1860, 6000 ft. altitude, and Henry's Fork, June 22, 1860, 5500 ft. altitude. *Dr. F. V. Hayden.*"

DISTRIBUTION: Mountain meadows, Alberta to British Columbia and southward to Colorado, Utah, and middle California. (Specimens examined from Alberta, Montana, Idaho, Wyoming, Colorado, Utah, California, Oregon, Washington, British Columbia.)

ILLUSTRATIONS: Erythea **8**: 68. *f. 36;* Jepson Man. Fl. Pl. Calif. *f. 194;* Abrams, Ill. Fl. Pacif. St. *f. 798;* Boott, Ill. Carex 150. *pl. 483.*

421. **Carex aboriginum** M. E. Jones, Bull. Univ. Mont. 61: 69. 1910.

Cespitose in medium-sized clumps, the rootstocks very short, tough, dark, fibrillose, the culms very slender, 5–9 dm. high, sharply triangular, papillose, smooth, much exceeding the leaves, aphyllopodic, purplish-red-tinged at base, the basal sheaths breaking and sparingly filamentose, the dried-up leaves of the previous year short; leaves with well-developed blades 4–8 to a fertile culm, clustered above the base, the blades erect, 0.5–1.5 dm. long (or up to 3 dm. on the sterile shoots), 1.5–3 mm. wide, channeled, the margins revolute, light-green, stiff, papillose, long-attenuate, the sheaths thin and hyaline ventrally, yellowish-brown-tinged, the ligule wider than long; staminate spike slender-peduncled, linear, 1–2 cm. long, 3.5 mm. wide, the scales broadly obovate, obtuse, purplish-red with lighter 3-nerved center and conspicuous white-hyaline margins; pistillate spikes usually 2, erect, approximate or more or less strongly separate, the upper sessile, the lower on short, smooth peduncles, short-oblong, to linear-oblong, 8–25 mm. long, 5–7 mm. wide, closely flowered, the perigynia 10–30, ascending in few–several rows; lowest bract squamiform, shorter than head, sheathless or very short-sheathing, the upper much reduced, biauriculate; scales orbicular, nearly the width but only half the length of perigynium, 3-nerved, sharply keeled, obtuse or rough-mucronate, purplish-red with lighter center and white-hyaline margins; perigynia obovoid, obtusely triangular in cross-section, 2.75–3.5 mm. long, 1.75–2.5 mm. wide, 2-ribbed and finely many-nerved, subcoriaceous, puncticulate, straw-colored, strongly purplish-red-blotched, round-tapering and sessile at base, abruptly beaked, the beak flattened, 0.25 mm. long, bidentulate, the teeth scarcely hispidulous within, the notch wide; achenes obovoid, 2 mm. long, 1.75 mm. wide, closely enveloped and filling lower three fourths of perigynium-body, triangular with concave sides, broadly substipitate, brownish, abruptly slenderly apiculate, jointed with the very short style; stigmas 3, slender, reddish-brown, rather short.

TYPE LOCALITY: "Indian Valley, southern Idaho, near Salubria, July 12, 1899."
DISTRIBUTION: Dry gumbo soil, wet in the spring, Idaho. (Specimens examined from Idaho.)
ILLUSTRATIONS: Bull. Univ. Mont. 61: 70. *f. 1–3.*

422. **Carex Gmelini** H. & A., Bot. Beech. Voy. 118. *pl. 27.* 1832.

Carex sp. Gmel. Fl. Sib. **1**: 139. *pl. 30, f. 1.* 1747. (Type from Kamtschatca.)
Carex acrolepis Ledeb. Denks. Bot. Ges. Regensb. **3**: 56. 1841. (Type from Siberia.) Not *C. acrolepis* Liebm. 1851.
Carex laticuspis Franch. Bull. Soc. Philom. VIII. **7**: 38. 1895. (Type from northern Japan.)

Cespitose, the clumps dense, from short, stout, scaly rootstocks, the culms 1–6 dm. high, stiff, papillose, sharply triangular, roughened above, aphyllopodic, strongly purplish-red-tinged at base, the basal sheaths breaking and becoming very sparingly filamentose, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades usually 3–5 to a fertile culm, clustered above the base, the blades light-green, firm, erect, papillose, flat with slightly revolute margins or channeled towards the base, 0.5–3 dm. long, 1.5–4 mm. wide, long-attenuate, strongly roughened towards apex, the sheaths strongly yellowish-red-tinged and red-dotted ventrally, concave at mouth, the ligule as long as wide; spikes 3–6, closely approximate or the lowest more or less strongly separate, the terminal gynaecandrous, the lateral pistillate, erect, short-peduncled (the peduncles rough), or the upper nearly sessile, oblong or oblong-cylindric, 1–3 cm. long, 5–10 mm. wide, closely flowered, containing 10–30 appressed-ascending perigynia in numerous rows; lowest bract leaflet-like, sheathless or very nearly so, dark-auricled, about length of inflorescence, the upper bracts reduced; scales ovate, purplish-black with lighter 1–3-nerved center excurrent as a prominent rough cusp and narrowly white-hyaline margins, as wide as but usually shorter than the perigynia; perigynia oblong-ovate, plano-convex, 4–5 mm. long, 2 mm. wide, subcoriaceous, yellowish-brown, purple-dotted, puncticulate, nerveless or nearly so ventrally, finely many-nerved dorsally, abruptly rounded to a short-stipitate base, rounded and abruptly minutely beaked at apex, the beak purple-tipped, 0.25 mm. long, bidentulate; achenes obovoid, 1.75–2 mm. long, 1–1.25 mm. wide, loosely enveloped in lower part of perigynium, yellowish-brown, triangular

with sides slightly concave below, substipitate, abruptly slender-apiculate, jointed with the straight slender style; stigmas 3, slender, short.

TYPE LOCALITY: Kamtschatca (Krazcheninnicow), "*Carex n. 77*, Gmel. Fl. Sib. v. 1. p. 139. *t. 30.*"

DISTRIBUTION: Along the coast, occasionally in the interior, from British Columbia to the Shumagin and Pribilof islands; also on the Asiatic coast as far south as northern Japan. (Specimens examined from British Columbia, Yukon, Alaska, Bering Straits.)

ILLUSTRATIONS: Gmel. Fl. Sib. 1: *pl. 30, f. 1;* H. & A. Bot. Beech. Voy. *pl. 27;* Engler, Pflanzenreich 4[20]: 397. *f. 62, A–C;* Boott, Ill. Carex 139. *pl. 440;* Jour. Russe Bot. 1911: 106. *f. 88;* Ostenf. Fl. Arct. 67. *f. 36.*

423. **Carex leiophylla** Mackenzie, sp. nov.

Loosely cespitose from long-creeping, slender, stout, fibrous rootstocks, the culms 2.5–3.5 dm. high, smooth, papillose, sharply triangular, slender and more or less nodding, not at all stiff, exceeding leaves, phyllopodic, purplish-tinged and more or less fibrillose at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 10–15 to a fertile culm, clustered on lower fourth, the blades mostly 1–2 dm. long, 2–3.5 mm. wide, yellowish-green, papillose, flat or slightly channeled with somewhat revolute margins, thick with prominent midvein, triangular and long-attenuate towards the apex, very smooth throughout, even towards the apex, the sheaths whitish, very membranaceous, and readily breaking ventrally, the ligule as long as wide; spikes 4 or 5, sessile, very closely aggregated into an oblong-ovoid head about 2.5 cm. long and 12–16 mm. wide, the terminal gynaecandrous with a few staminate flowers at base, the lateral pistillate with 10–20 spreading-ascending perigynia closely packed in several to many rows; bracts sheathless, the lower with dilated dark-purplish base, short-prolonged but exceeded by head, the others scale-like; scales ovate or lance-ovate, acute, purplish-brown with slightly hyaline margins and apex and with slender midvein not conspicuous for its whole length, about width of but shorter than mature perigynia; perigynia ovoid, 4 mm. long, 2 mm. wide, suborbicular in cross-section and somewhat inflated, straw-colored, purplish-blotched, 2-ribbed and obscurely many-nerved, minutely granular, subcoriaceous, strongly stipitate, round-tapering at base, more or less abruptly contracted at apex, the beak 1 mm. long, bidentate, purplish, and strongly white-hyaline at the orifice; achenes triangular, oblong-obovoid, 2.25 mm. long, 1.5 mm. wide, loosely enveloped, sessile, apiculate, jointed with the slender included style; stigmas 3, slender, long.

Laxe cespitosa e rhizomatibus repentibus; culmi acute triangulares plusminus nutantes folia superantes; folia 10–15 crassa paullo revoluta glabra, costa crassa, vaginis albidis; spicae 4 vel 5 sessiles in capitulum oblongum confertae, terminalis gynaecandra basi mascula, laterales femineae, bracteis brevibus evaginatis; squamae ovatae vel ovato-lanceolatae acutae purpureo-brunneae perigyniis breviores; perigynia ovoidea 4 mm. longa straminea paullo inflata 2-costata inconspicue multinervata, in rostrum bidentatum 1 mm. longum contracta; achaenia triangularia oblongo-ovoidea apiculata.

TYPE collected at Carcross, Upper Yukon Valley, *Alice Eastwood 725.*

DISTRIBUTION: Known only from the type locality. (Specimens examined from Yukon.)

424. **Carex Nelsonii** Mackenzie, in Rydb. Fl. Rocky Mts. 137. 1917.

Loosely cespitose, the rootstock short-creeping, rather slender, light-brown, the culms 1.5–3 dm. high, stiff, erect, triangular, smooth, much exceeding the leaves, phyllopodic, fibrillose and brownish and sparingly dark-purplish-red-tinged at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 5–12 to a fertile culm, clustered near the base, the blades thick, dull-green, flat with scarcely revolute margins, channeled at base, 3–15 cm. long, 3–4 mm. wide, short-attenuate, roughened towards the apex, the sheaths whitish ventrally, concave at mouth, the ligule much wider than long; spikes 2 or 3, closely aggregated, sessile and forming a dense capitate head, the spikes oblong or obovoid, 10–12 mm. long, 5–8 mm. wide, the lateral pistillate, the terminal gynaecandrous and somewhat clavate at base, densely 15–35-flowered, the appressed perigynia in numerous rows; bracts sheathless, scale-like and inconspicuous or the lowest short-prolonged; an empty bract-like

leaf usually 1 cm. below head and about equaling the inflorescence often present; scales ovate or ovate-lanceolate, obtuse or slightly acute, black, the midvein obsolete and upper margins not hyaline, narrower and shorter than the perigynia; perigynia oblong-obovoid, somewhat inflated and compressed-suborbicular, 4 mm. long, 1.5 mm. wide, yellowish-green, strongly blotched with purplish-black, membranaceous, 2-ribbed (the lateral), otherwise nerveless, puncticulate, granular-roughened on margins above and ciliate-serrulate, glabrous, rounded at base, substipitate, somewhat abruptly contracted into a purplish-black, cylindric, sharply bidentate, sparsely ciliate-serrulate beak nearly 1 mm. long; achenes small, obovoid, 1.5 mm. long, 0.75 mm. wide, scarcely half length of perigynium, triangular with flattened sides, stipitate, yellowish-brown, granular, apiculate, jointed with the slender style; stigmas 3, slender, very short, whitish at flowering.

TYPE LOCALITY: La Plata Mines, Wyoming (*A. & E. Nelson 5264*).
DISTRIBUTION: Mountain meadows at 3000–4100 m. elevation, Wyoming and Colorado. (Specimens examined from Wyoming and Colorado.)
ILLUSTRATION: Clements, Rocky Mt. Fl. *pl. 45, f. 7* (as *C. atrata*).

425. **Carex atrosquama** Mackenzie, Proc. Biol. Soc. Wash. 25: 51. 1912.

Carex apoda Clokey, Am. Jour. Sci. V. 3: 88. *pl. 2, f. 1–6*. 1922. (Type from Custer County, Idaho.)

Densely cespitose, the rootstocks very short, slender, the culms 1.5–5 dm. high, slender, erect, or at maturity nodding, sharply triangular, slightly roughened above, much exceeding the leaves, phyllopodic, dark-purplish-red-tinged at base, the lower sheaths sparingly filamentose, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 7–10 to a fertile culm, on lower fourth, mostly clustered near base, the blades deep-green, firm, flat, with slightly revolute margins, 0.5–2.5 dm. long, 1.5–3.5 mm. wide, mostly erect, attenuate, roughened towards the apex, the sheaths whitish or yellowish-white ventrally, concave at mouth, the ligule as long as wide; spikes 3 or 4, the lateral pistillate, the terminal gynaecandrous and clavate at base, approximate or the lower slightly separate, the lower 1 or 2 on erect peduncles half to twice their own length, the others sessile or nearly so, the peduncles rough, triangular, the spikes oblong, 6–20 mm. long, 5–6 mm. wide, densely 15–35-flowered, with appressed perigynia in several rows; lowest bract leaflet-like, slightly or not at all sheathing, not or but little purplish-tinged, shorter than or exceeding the inflorescence; upper bracts much reduced; scales broadly ovate, obtuse or slightly acute, black, the midvein obsolete or very indistinct, and the upper margins not at all or but very slightly hyaline, nearly the width of but markedly shorter than the perigynia; perigynia narrowly elliptic-obovoid, 3.25 mm. long, 1.75 mm. wide, nerveless, granular-roughened above, puncticulate, olive-green, becoming yellowish-brown, sometimes slightly purplish-spotted, membranaceous, slightly inflated, suborbicular and but little flattened at maturity, glabrous, sessile, round-tapering at base, abruptly contracted into a minute shallowly bidentate purplish-black beak 0.5 mm. long; achenes obovoid, 1.5–2 mm. long, 1 mm. wide, rather loosely enveloped in lower part of body of perigynium, triangular with sides somewhat concave below, stipitate, dull-yellowish-brown, slightly granular, apiculate, jointed with the slender, not exserted style; stigmas 3, short, slender, whitish at flowering.

TYPE LOCALITY: Head of Smoky River, Alberta (*N. Hollister 14*).
DISTRIBUTION: Mountain meadows, Alberta to British Columbia, and southward to Montana, Idaho and Oregon. (Specimens examined from Alberta, British Columbia, Montana, Idaho, and Oregon.)
ILLUSTRATIONS: Am. Jour. Sci. V. 3: *pl. 2, f. 1–6*; Abrams. Ill. Fl. Pacif. St. *f. 804*.

426. **Carex Helleri** Mackenzie, Erythea 8: 80. 1922.

Carex atrata var. *nigra* W. Boott, in S. Wats. Bot. Calif. 2: 239, in part. 1880.
"*Carex nova* L. H. Bailey" Smiley, Univ. Calif. Publ. Bot. 9: 124. 1921.

Very densely cespitose, not stoloniferous, the culms 0.5–3 dm. high, slender but strictly erect, sharply triangular, roughened on angles beneath head, exceeding leaves, phyllopodic,

purplish-red-tinged at base, the dried-up leaves of the previous year inconspicuous; leaves with well-developed blades usually 6–10 to a fertile culm, clustered near the base, not septate-nodulose, the blades flat with slightly revolute margins, stiff, light-green, erect or ascending, up to 1 dm. long, 2–3.5 mm. wide, strongly attenuate, the sheaths very thin ventrally, usually whitish, often reddish-dotted, concave at mouth, the ligule as long as wide; spikes 3–5, closely aggregated, the terminal gynaecandrous, sessile or short-peduncled, with few staminate flowers, the lateral pistillate, sessile or very short-peduncled, oblong, 10–20 mm. long, 5–7 mm. wide, obtuse at apex, rounded or the terminal one tapering at base, very densely 25–50-flowered, the appressed-ascending perigynia in many rows; lowest bract leaflet-like, not sheathing, shorter than inflorescence, strongly purplish-margined or auricled at base; upper bracts much reduced; scales lanceolate or lanceolate-ovate, aristate or acuminate, purplish-black, with white midvein extending entire length or in places obsolete, longer but much narrower than the perigynia; perigynia very strongly 2-edged and flat save where distended in center by achene, broadly oval to orbicular, 2.5–3.5 mm. long, 2–3 mm. wide, 2-ribbed (the marginal), otherwise nerveless, membranaceous, smooth, puncticulate, strongly purplish-tinged, except the light-green margins, rounded and sessile or substipitate at base, rounded above and very abruptly minutely beaked, the beak apiculate, 0.25 mm. long, shallowly bidentate, purplish-tinged; achenes narrowly oblong-obovoid, 1.5 mm. long, 0.75 mm. wide, much narrower and shorter than the perigynia, triangular with shallowly concave sides, substipitate, yellowish-brown, abruptly apiculate, jointed with the straight slender style; stigmas 3, slender, whitish at flowering.

TYPE LOCALITY: Mt. Rose, Washoe County, Nevada (*Heller 9975*).
DISTRIBUTION: At high altitudes in the Sierra Nevada of California, from Tulare County north to El Dorado County; also in the White Mountains of California and the high mountains of western Nevada. (Specimens examined showing distribution as given.)
ILLUSTRATIONS: Erythea 8: 70. *f. 38;* Abrams, Ill. Fl. Pacif. St. *f. 801;* Jepson, Man. Fl. Pl. Calif. *f. 196.*

427. **Carex epapillosa** Mackenzie, in Rydb. Fl. Rocky Mts. 138. 1917.

Densely cespitose, the rootstocks very short, the culms 1.5–6 dm. high, erect, usually rather stiff, sharply triangular, smooth, exceeding the leaves, phyllopodic, dark-purplish-red-tinged and brown-fibrillose at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 5–8 to a fertile culm, on lower fourth, the blades stiff, erect, light-green, flat with somewhat revolute margins, 0.5–2 dm. long, 3.5–7 mm. wide, attenuate, smooth except towards the apex, the sheaths whitish or dull-yellowish-tinged ventrally, tight, dorsally somewhat septate-nodulose, concave at mouth, the ligule very short, much wider than long; spikes 3–6, usually 4 or 5, the terminal gynaecandrous, its lower third staminate, the lateral pistillate, all approximate, the upper closely aggregated, the lowermost on peduncles 3–10 mm. in length, erect or erect-ascending, oblong, 1–2.5 cm. long, 6–8 mm. wide, very closely flowered, with 30–60 appressed-ascending perigynia in many rows; bracts sheathless, dark-purplish-tinged at base, the lowest leaflet-like, usually shorter than the head, the others scale-like; scales blackish, ovate or lanceolate, acute, acuminate, or cuspidate, about the length of the perigynia but much narrower, the light-colored midvein often conspicuous for its entire length; perigynia oval or oval-orbicular, strongly flattened, not inflated, 3–4 mm. long, 1.75–3 mm. wide, membranaceous, puncticulate, very smooth, not at all papillose, 2-ribbed (the marginal), otherwise nerveless or very obscurely nerved, dull-yellowish-green or purplish-blotched, sessile, rounded at base and apex, abruptly minutely beaked, the beak purple, slender, 0.5 mm. long, bidentate; achenes obovoid, small, 1.5 mm. long, 1 mm. wide, occupying about a third of width of perigynium, triangular with sides somewhat concave below or rarely lenticular, dull-yellowish-brown, granular, strongly stipitate, apiculate, jointed with the straight, slender, at length deciduous style; stigmas 3 or rarely 2, slender, short.

TYPE LOCALITY: Marysvale, Utah (*M. E. Jones 5345*).
DISTRIBUTION: Mountain meadows, Wyoming to Washington, and southward to Utah and California. (Specimens examined from Wyoming, Utah, Nevada, Washington, Oregon and California.)
ILLUSTRATION: Abrams, Ill. Fl. Pacif. St. *f. 802.*

428. Carex heteroneura W. Boott, in S. Wats. Bot. Calif. 2: 240. 1880.

"*Carex atrata* L." W. Boott, in S. Wats. Bot. Calif. **2**: 239. 1880.
Carex atrata var. *erecta* W. Boott, in S. Wats. Bot. Calif. **2**: 239. 1880. (Type from California.)
Carex quadrifida L. H. Bailey, Proc. Calif. Acad. II. **3**: 104. 1891. (Type from Mt. Dana, California.)
Carex quadrifida var. *lenis* L. H. Bailey, Proc. Calif. Acad. II. **3**: 104. 1891. (Type from Mt. Dana, California.)
Carex quadrifida var. *caeca* L. H. Bailey, Bot. Gaz. **21**: 8. 1896. (Type from San Jacinto Mountains, California.)
Carex atrata subsp. *atratiformis* var. *erecta* "W. Boott" Kükenth. in Engler, Pflanzenreich **4**[20]: 399. 1909. (Based on *C. atrata* var. *erecta* W. Boott.)
Carex atrata subsp. *atratiformis* var. *erecta* f. *lenis* Kükenth. in Engler, Pflanzenreich **4**[20]: 399. 1909. (Based on *C. quadrifida* var. *lenis* L. H. Bailey.)
Carex atrata subsp. *atratiformis* var. *erecta* f. *caeca* Kükenth. in Engler, Pflanzenreich **4**[20]: 400. 1909. (Based on *C. quadrifida* var. *caeca* L. H. Bailey.)
"*Carex atrata* var. *discolor* L. H. Bailey" Smiley, Univ. Calif. Publ. Bot. **9**: 124. 1921.

Very densely cespitose, the rootstocks usually very short, the culms 2.5–10 dm. high, slender but erect, exceeding leaves, acutely triangular above, smooth or somewhat roughened above, phyllopodic, strongly purplish-red-tinged at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades usually 5–10 to a fertile culm, on the lower third, the lower clustered, the blades stiff, erect, light-green, flat with slightly revolute margins, 0.5–3 dm. long, 2–4 mm. wide, attenuate, much roughened towards the apex, the sheaths yellowish-tinged ventrally and usually more or less purplish-red, concave at mouth, the ligule as long as wide; spikes 3–6, usually 4, closely approximate or the lowest 1 or 2 from little to strongly separate, the terminal gynaecandrous, rarely staminate, the lateral pistillate, erect, the upper very short-peduncled or sessile, the lower on peduncles from one half to twice the length of the spikes, the peduncles triangular, rough, the spikes oblong or rather broadly linear-oblong, 0.7–2.5 cm. long, 5–7 mm. wide, densely flowered, containing 15–40 appressed-ascending perigynia in many rows; lowest bract leaflet-like, sheathless or nearly so, purple-auricled, from much shorter than to exceeding inflorescence; upper bracts much reduced; scales dark-purple-brown with lighter center conspicuous to the tip and minutely hyaline margins, the staminate ovate or obovate, obtuse or acute, the pistillate ovate or lance-ovate, acute, half width and from nearly length of to noticeably shorter than the perigynia; perigynia broadly oval or obovate or suborbicular, 2.5–3.5 mm. long, 1.75–2.5 mm. wide, very strongly flattened, not inflated, membranaceous, glabrous, puncticulate, not granular, greenish-white with green edges, 2-ribbed (the marginal), otherwise nerveless or obscurely few-nerved dorsally, sessile, rounded at base and apex, abruptly minutely beaked, the beak slender, purple, minutely bidentate, 0.25 mm. long; achenes minute, obovoid, 1.75 mm. long, 0.75–1 mm. wide, half width of perigynia, triangular with slightly concave sides, short-stipitate, yellowish-brown, granular, apiculate, jointed with the slender style; stigmas 3, slender, very short.

TYPE LOCALITY: Lake Tahoe to Bear Valley, California (*Kellogg*).
DISTRIBUTION: Mountain meadows, Sierra Nevada of California, from Tulare County to Placer County; in the high mountains of southern California, and in the high mountains of western Nevada. (Specimens examined showing range as given.)
ILLUSTRATIONS: Bull. So. Calif. Acad. **4**: *pl. 12;* Erythea **8**: 71. *f. 39;* Abrams, Ill. Fl. Pacif. St. *f. 803;* Jepson, Man. Fl. Pl. Calif. *f. 197.*

429. Carex bella L. H. Bailey, Bot. Gaz. 17: 152. 1892.

Carex atrata var. W. Boott, in Rothr. Bot. Wheeler's Surv. 278. 1878. (Type from Mt. Graham, Arizona.)
"*Carex atrata* var. *ovata* Boott" L. H. Bailey, in Coult. Man. 388. 1885.
Carex atrata var. *discolor* L. H. Bailey, Jour. Bot. **26**: 321. 1888. (Type from mountains of Colorado and Utah and southward.)
Carex atrata subsp. *atratiformis* var. *discolor* Bailey; Kükenth, in Engler, Pflanzenreich **4**[20]: 399. 1909. (Based on *C. atrata* var. *discolor* L. H. Bailey.)

Cespitose, the rootstocks short-creeping, fibrillose, the clumps medium-sized, the culms very slender, 5–9 dm. high, often drooping, much exceeding the leaves, sharply triangular, roughened on the angles above, phyllopodic, cinnamon-brown and more or less strongly purplish-red-tinged at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades usually 8–12 to a fertile culm, on the lower half, but not bunched, not

septate-nodulose, the blades light-green, firm, erect, flat, usually 2–4 dm. long, 3–6 mm. wide, long-attenuate, roughened on the margins and towards the apex, the sheaths very thin ventrally and dull reddish-brown-tinged or dotted, concave at mouth, the ligule as long as wide; spikes 3 or 4, the lower strongly peduncled, more or less drooping, the peduncles slender, roughish, 1.5–4 cm. long, the upper spikes erect, short-peduncled or nearly sessile, the uppermost contiguous, the others more or less strongly separate, gynaecandrous, the lateral with a few staminate flowers, the terminal half staminate, the lateral oblong-linear, 12–25 mm. long, 4–5 mm. wide, closely flowered, containing 15–30 appressed perigynia in few rows, the terminal spike slightly wider; lowest bract short (2–5 mm.), sheathing, leaflet-like, exceeding head, the upper much reduced; staminate scales oblong-obovate, acutish, dark-purplish-brown with lighter midrib and shining white-hyaline margins; pistillate scales ovate, obtuse or acute, dark-purplish-brown with lighter midrib usually conspicuous throughout, and shining white-hyaline margins, nearly as wide as but shorter than mature perigynia; perigynia strongly flattened but swollen by ripening achene, broadly oval to oblong-oval, 3–4 mm. long 1.75–2 mm. wide, 2-ribbed (the marginal), otherwise nerveless or lightly 2–3-nerved on one face, whitish-green, little or not at all purplish-tinged, membranaceous, puncticulate, smooth, not granular, rounded at base, substipitate, rounded at apex and abruptly beaked, the beak apiculate, 0.3 mm. long, purplish-tinged at mouth, shallowly bidentate; achenes obovoid or oblong-obovoid, 2–2.5 mm. long, 1.75 mm. wide, little narrower but much shorter than perigynia, triangular with sides concave below, substipitate, yellowish-brown, granular, short-round-tapering at apex, strongly apiculate and jointed with the straight, slender style; stigmas 3, slender, short, whitish at flowering.

TYPE LOCALITY: "Mountains, Colorado, Utah, and Arizona."
DISTRIBUTION: Wooded hillsides and along streams in the higher mountains, Colorado to Utah, and southward to New Mexico and Arizona; erroneously recorded from California. A handsome species. (Specimens examined from Colorado, Utah, New Mexico, Arizona.)

430. **Carex albo-nigra** Mackenzie, in Rydb. Fl. Rocky Mts. 137. 1917.

Cespitose, the rootstocks short, slender, the culms 1–3 dm. high, stiff, rigid and erect, sharply triangular, roughened towards apex, much exceeding leaves, phyllopodic, purplish-red-tinged and but slightly fibrillose towards base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 6–12 to a fertile culm, clustered at base, not septate-nodulose, the blades light-green, firm, erect or ascending, flat with slightly revolute margins, 5–20 cm. long, 2.5–5 mm. wide, roughened towards the strongly attenuate apex; sheaths whitish ventrally, concave at mouth, the ligule as long as wide; spikes usually 3, approximate or the lowest slightly separate, the lowest on an erect peduncle shorter than the spike, the others sessile or nearly so, the lateral pistillate, narrowly oblong, very closely flowered, 8–10 mm. long, 4 mm. wide, with 8–20 appressed perigynia in several to many rows, the terminal gynaecandrous, clavate at base, 10–12 mm. long, 6 mm. wide, with about 25–30 appressed perigynia in several to many rows; lowest bract leaflet-like, about equaling inflorescence, brownish-purple-tinged and subsheathing at base, the others scale-like; scales broadly ovate, obtuse or acutish, purplish-black, conspicuously white-hyaline at apex and on the margins, the midvein normally more or less obsolete, mostly wider than (except at apex) and nearly length of the perigynia; perigynia much flattened, broadly ovate or obovate, 3–3.5 mm. long, 2 mm. wide, 2-ribbed (the marginal), otherwise nerveless or nearly so, membranaceous, glabrous, granular, purplish-black, rounded at base, substipitate, rounded at apex, and very abruptly contracted into a minute, apiculate, shallowly bidentate beak scarcely 0.5 mm. long; achenes obovoid, 1.25 mm. long, 0.75 mm. wide, narrower and shorter than the perigynia, triangular with concave sides, granular, light-yellowish-brown, substipitate, apiculate, jointed with the straight, slender style; stigmas 3, slender, short, whitish at flowering.

TYPE LOCALITY: Needle Mountain, Wyoming (*Merritt Cary 613*).
DISTRIBUTION: Dry mountain sides at high elevations, Alberta to Washington, and southward to Arizona and California. (Specimens examined from Wyoming, Colorado, Alberta, Utah, Arizona California, Washington.)
ILLUSTRATION: Abrams, Ill. Fl. Pacif. St. *f. 805.*

431. Carex nova L. H. Bailey, Jour. Bot. 26: 322. 1888.

"*Carex atrata* var. *nigra* Boott" Olney in S. Wats. Bot. King's Expl. 371. 1871 (and other authors).
"*Carex nigra* All." Olney, Caric. Bor.-Am. 10. 1877.
"*Carex melanocephala* Turcz." Holm, Am. Jour. Sci. IV. 16: 21, 27. 1903.
Carex violacea C. B. Clarke, Kew Bull. Add. Ser. 8: 87. 1908. (Type, *Hall & Harbour 587* from Colorado, erroneously attributed to California.)

Cespitose, the rootstocks short-creeping, slender, the clumps medium-sized, the culms stiffly erect, 1.5–6 dm. high, exceeding the leaves, sharply triangular, smooth or more or less roughened above, phyllopodic, strongly purplish-red-tinged at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 8–15 to a fertile culm, chiefly bunched above the base, not septate-nodulose, the blades firm, erect, light-green, flat with slightly revolute margins, 5–15 cm. long, 2.5–5 mm. wide, roughened at the attenuate apex, the sheaths hyaline and yellowish-brown-tinged ventrally, concave at mouth, the ligule as long as wide; spikes 3 or 4, the lateral pistillate, the terminal gynaecandrous, sessile, very closely aggregated into a dense terminal head 8–18 mm.. long and about as wide, the spikes suborbicular, 7–12 mm. long, 6–10 mm. wide, very closely flowered, the spreading-ascending, at length squarrose perigynia in many rows; head subtended by an empty bract 2–30 mm. below, little sheathing, darkened at base, from shorter to longer than the head; other bracts obsolete; scales lanceolate or oblanceolate to obovate, obtusish to acutish or short-cuspidate, purplish-black with very narrow hyaline margins above, the midrib very inconspicuous, the pistillate shorter and narrower than the perigynia; perigynia much flattened, but strongly distended by ripening achene, ovate-suborbicular to obovoid, 3–4 mm. long, 2–3.5 mm. wide, 2-ribbed (the marginal), otherwise nerveless, membranaceous, granular, remotely and sparingly ciliate-scabrous, purplish-black with green margins and straw-colored at base, rounded and substipitate at base, rounded at apex, abruptly short-beaked, the beak apiculate, 0.5–1 mm. long, sharply bidentate, purplish-black; achenes narrowly obovoid, 1.75–2 mm. long, 1 mm. wide, much shorter than and about half as wide as perigynia, triangular with sides concave below, short-stipitate, yellowish-brown, granular, short-round-tapering and abruptly apiculate at apex, jointed with the slender straight style; stigmas 3, short, slender, dull-brownish.

TYPE LOCALITY: "Mountains of Wyoming and Colorado and southward."
DISTRIBUTION: Along streams and in mountain meadows at altitudes of 2400–3900 meters, Montana to New Mexico and Utah. Erroneously recorded from California. (Specimens examined from Montana, Wyoming, Colorado, New Mexico, Utah.)

432. Carex chalciolepis Holm, Am. Jour. Sci. IV. 16: 28, 29. *f. 1–5.* 1903.

Carex atrata var. *chalciolepis* Kükenth. in Engler, Pflanzenreich 4[20]: 399. 1909. (Based on *C. chalciolepis* Holm.)

Densely cespitose; the rootstocks very short, the clumps medium-sized, the culms slender and weak, nodding or even reclining, 2–7.5 dm. high, exceeding the leaves, sharply triangular, smooth or slightly roughened above, phyllopodic, purplish-red-tinged at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 5–10 to a fertile culm, on the lower half, the lower bunched, the blades erect, stiff, dull-green, flat, with slightly revolute margins, 7–15 cm. long, 2.5–6 mm. wide, long-attenuate, slightly roughened towards the apex on the margins, the sheaths white or yellowish-tinged ventrally, concave at mouth, the ligule wider than long; spikes 2–4, closely aggregated or the lowest slightly separate, the terminal gynaecandrous, the lateral pistillate, all varying from short-peduncled to sessile, oblong (especially the lateral) to broadly ovoid (especially the terminal), 1–2.5 cm. long, 6–10 mm. wide, very closely flowered, the perigynia appressed-ascending in many rows; lowermost bract leaflet-like, from shorter to longer than the inflorescence, darkened and slightly or not at all sheathing at the base; upper bracts much reduced; scales brown-copper-colored, very thin and closely appressed, the staminate lanceolate or ovate-lanceolate, with very inconspicuous midrib and narrow hyaline margins, acute to short-cuspidate, the pistillate similar

but the midrib not apparent, mostly narrower than but exceeding the perigynia; perigynia broadly ovate-suborbicular to obovate, 3–4 mm. long, 2.3–5 mm. wide, much flattened, but distended by the ripening achene, 2-ribbed (the marginal), otherwise nerveless, membranaceous, puncticulate, granular above, dark-purple, the upper margins often green, round-truncate at base, sessile, rounded at apex, sparsely ciliate-serrulate along the margins, abruptly short-beaked, the beak 0.5 mm. long, emarginate, dark-purple; achenes narrowly obovoid, 2 mm. long, 1 mm. wide, triangular with sides slightly concave below, much narrower than perigynia, dull-yellowish-brown, minutely granular, very short-stipitate, apiculate, jointed with the straight slender style; stigmas 3, short, slender.

TYPE LOCALITY: Pagosa Peak, Colorado (*C. F. Baker*), and Mt. Kelso (*Holm*).

DISTRIBUTION: Mountain slopes and meadows at 2400–3900 meters elevation, Wyoming and Colorado to Utah and Arizona. (Specimens examined from Wyoming, Colorado, Utah, Arizona.)

ILLUSTRATIONS: Am. Jour. Sci. IV. **16**: 29. *f. 1–5;* Clements, Rocky Mt. Fl. *pl. 45, f. 6* (as *C. atrata*).

433. Carex atrata L. Sp. Pl. 976. 1753.

Carex atrata var. *varia* Gaudin, Étr. Fl. 178. 1804. (Type from central Europe.)
Carex atrata var. *rectiuscula* Hartm. Skand. Fl. 41. 1820. (Type from Sweden.)
Trasus atratus S. F. Gray, Nat. Arr. Brit. Pl. **2**: 56. 1821. (Based on *Carex atrata* L.)
Loxanisa atrata Raf. Good Book 26. 1840. (Based on *Carex atrata* L.)
Carex castanea Mielichh.; Sauter, Flora **32**: 665. 1849. (Type from Central Europe.)
Carex atrata var. *brunnescens* Anderss. Cyp. Scand. 37. 1849. (Type from Sweden.)
Carex atrata var. *spadicea* Beurl. Bot. Notiser **1853**: 36. 1853. (Based on *C. atrata* var. *brunnescens* Anderss.)
Carex Siberi Rota, Prosp. Fl. Bergamo 103. 1853. (Type from Lombardy.)
Carex atrata var. *laxa* Neilr. Fl. Nieder.-Oesterr. 107. 1859. (Type from central Europe.)
Carex atrata f. *gelida* Schur, Enum. Pl. Transsilv. 708. 1866. (Type from southeastern Europe.)
Carex atrata var. *bicolor* Celak. Prodr. Fl. Böhm. 67. 1867. (Type from central Europe.)
Carex frigida × *atrata* Brügger, Jahresber. Nat. Ges. Graubünd. **23–24**: 119. 1881. (Type from Switzerland.)
Carex atrata var. *typica* G. Beck, Fl. Nieder. Oesterr. 137. 1890. (Based on *C. atrata* L.)
Carex atrata f. *castanea* K. Richt. Pl. Eur. **1**: 157. 1890. (Based on *C. castanea* Mielichh.)
Carex atrata f. *decolorans* Neuman, Sv. Fl. 698. 1901. (Type from Sweden.)

Cespitose, from slender, brownish, fibrillose, short-elongated rootstocks, the culms 1.5–5 dm. high, stiff below, slender and nodding above, papillose, sharply triangular, smooth or but little roughened above, much exceeding the leaves, phyllopodic and purplish-red-tinged and more or less fibrillose at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 7–15 to a fertile culm, mostly clustered near the base, the blades flat with slightly revolute margins and channeled above, light-green, stiff, papillose, usually 5–20 cm. long, 2–8 mm. wide, roughened towards the attenuate apex, the sheaths hyaline and usually more or less yellowish-brown-tinged ventrally, strongly high-convex at mouth, the ligule as long as wide; spikes 3–7, approximate or the lowest somewhat separate (usually less than 5 cm.), the upper short-peduncled and weakly erect, the lower on peduncles from shorter to longer than their own length and from weakly erect to nodding, the peduncles triangular, slender, smooth, the terminal spike gynaecandrous, the upper three quarters pistillate and ovoid or oblong-ovoid, the whole generally 12–24 mm. long, 7–10 mm. wide, the lateral spikes similar but pistillate throughout and slightly narrower, densely flowered, the 15–50 perigynia closely appressed in several to many rows; lowest bract leaflet-like, not sheathing, but dark-auricled, from shorter than to exceeding inflorescence; the upper much reduced; scales ovate to oblong-ovate, black or fading brownish-black, usually with inconspicuous lighter midrib extending to apex and whitish-hyaline tip and very narrow margins, strongly acute to obtusish, about as wide as (except towards apex) and usually slightly longer than the mature perigynia; perigynia broadly oval to obovate, more or less strongly flattened, 3–4 mm. long, 1.5–3 mm. wide, 2-ribbed (the marginal), otherwise nerveless, submembranaceous, papillose, yellowish-brown and more or less strongly purplish-blotched, round-tapering and substipitate at base, rounded at apex, very abruptly beaked, the beak apiculate, 0.5 mm. long, emarginate, purplish-tipped; achenes narrowly oblong-obovoid, 2–2.5 mm. long, 0.75–1 mm. wide, occupying two thirds or half of perigynium and about half its width, triangular with blunt angles and sides concave below, short-stipitate, yellowish-brown, short-apiculate, jointed with the straight slender style; stigmas 3, slender, brownish-black, short.

TYPE LOCALITY: "Habitat in Alpibus Europae."

DISTRIBUTION: Arctic or alpine meadows in calcareous districts, Greenland to Alberta, and southward to Colorado and Nevada; widely distributed in arctic-alpine Eurasia. (Specimens examined from Greenland, Alberta, Montana, Idaho, Wyoming, Colorado, Utah, Nevada.)

ILLUSTRATIONS: Engler, Pflanzenreich 4^{20}: 397. *f. 62, D–G;* Schkuhr, Riedgr. *pl. X, f. 77;* Fl. Dan. *pl. 158;* Jour. Russe Bot. 1911: 107. *f. 89;* Sturm, Deuts. Fl. 47: *pl. 111;* Clarke, Ill. Cyp. *pl. 144, f. 5–9;* Am. Jour. Sci. IV. 16: 29. *f. 6–7;* Ostenf. Fl. Arct. 65. *f. 34;* Reichenb. Ic. Fl. Germ. 8: *pl. 237, f. 592;* Anderss. Cyp. Scand. *pl. 6, f. 67;* Engl. Bot. *pl. 2044;* ed. 2. *pl. 1635;* Benth. Handb. Brit. Fl. ed. 2. *f. 1115;* Coste, Fl. Fr. *f. 3840;* Host, Gram. Austr. 1: *pl. 88;* Hegi, Ill. Fl. Mittel-Eur. *pl. 52, f. 3;* Karst. Deuts. Fl. 351. *f. 177 (4);* Hallier, Deuts. Fl. *pl. 434;* Lindm. Bild. Nord. Fl. *pl. 435 B.*

434. **Carex atratiformis** Britton, Bull. Torrey Club 22: 222. 1895.

Carex ovata Rudge, Trans. Linn. Soc. 7: 96. *pl. 9, f. 1.* 1804. (Type from Newfoundland.) Not *C. ovata* Burm. *f. 1768.*

Carex atrata var. *ovata* Boott, Ill. Carex 114. *pl. 362.* 1862. (Based on *C. ovata* Rudge.)

Carex atrata subsp. *atratiformis* "Britton" Kükenth. in Engler, Pflanzenreich 4^{20}: 399. 1909. (Based on *C. atratiformis* Britton.)

× *Carex quirponensis* Fernald (*C. atratiformis* × *Halleri*), Rhodora 28: 164. 1926. (Type from Quirpon Island, Newfoundland.)

Cespitose, the rootstocks slender, short, the clumps medium-sized, the culms slender, 2–9 dm. high, much exceeding the leaves, sharply triangular, more or less roughened above, phyllopodic, purplish-red-tinged at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 6–15 to a fertile culm, clustered above the base, not septate-nodulose, the blades flat with revolute margins, glaucous-green, thin but firm, erect or ascending, 1–2.5 dm. long, 2.5–5 mm. wide, short-attenuate, much roughened towards the apex, the sheaths white-hyaline ventrally, often yellowish-tinged, concave at mouth, the ligule wider than long; spikes 3–6, the lateral pistillate with a very few basal staminate flowers, the terminal gynaecandrous, approximate or little separate, the lower nodding on slender, rough peduncles 1–2 times the length of the spikes, the upper more erect on shorter peduncles, the spikes narrowly oblong, 1–2.5 cm. long, 4–6 mm. wide, or the terminal one slightly wider, densely flowered, the 10–30 closely appressed perigynia ascending in several to many rows; lowest bract leaflet-like, mostly shorter than the culm, scarcely sheathing, slightly darkened at base; upper bracts much reduced; scales ovate, obovate or oblong-lanceolate, acute to short-cuspidate, dull, not shining, dark-reddish-brown to brownish-black with nearly obsolete midrib and minutely hyaline margins, the pistillate about as wide as and slightly longer than the perigynium; perigynia ovoid to orbicular-ovoid, flattened-oval in cross-section, 2-edged, distended over achene, slightly inflated, 2.5–3 mm. long, 1.5–1.75 mm. wide, 2-ribbed (the marginal), nerveless or few-nerved, membranaceous, granular, puncticulate, purplish-brown, or straw-colored below, obscurely very short-stipitate, rounded at base, round-tapering and abruptly short-beaked at apex, the beak apiculate, 0.5 mm. long, shallowly bidentate; achenes small, obovoid, 1.5–1.75 mm. long, 0.75–1 mm. wide, loosely enveloped in lower part of perigynium, triangular with lightly concave sides, nearly sessile, silvery-black and shining, strongly granular, apiculate, jointed with the slender style; stigmas 3, slender, short.

TYPE LOCALITY (of *C. ovata* Rudge, on which *C. atratiformis* is based): "Habitat in Newfoundland."

DISTRIBUTION: Sunny banks and meadows along streams in calcareous districts, Labrador and Newfoundland to Yukon, and southward to Maine, Michigan, and Alberta. (Specimens examined from Labrador, Newfoundland, Quebec, New Brunswick, Maine, New Hampshire, Vermont, Michigan, Alberta.)

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 715;* ed. 2. *f. 1042;* Rob. & Fern. Man. *f. 429;* Boott, Ill. Carex 114. *pl. 362;* Trans. Linn. Soc. 7: *pl. 9, f. 1.*

435. **Carex Mertensii** Prescott; Bong. Mém. Acad. St.-Pétersb. VI. 2: 168. 1832.

Carex columbiana Dewey, Am. Jour. Sci. 30: 62. *pl. BB, f. 90.* 1836. (Type from Columbia River.)

Densely cespitose, the rootstocks very short, stout, the clumps large, the culms 3–10 dm. high, slender, erect, usually much exceeding the leaves, very sharply triangular with concave sides and narrowly winged, very rough on angles, aphyllopodic, purplish-red-tinged at base; leaves with well-developed blades 3–6 to a fertile culm, regularly disposed on the lower half,

not bunched, the blades erect, flaccid, light-green, flat with slightly revolute margins, 1–4 dm. long, 4–7 mm. wide, attenuate, roughened towards the apex, the sheaths rather loose, cinnamon-brown-tinged, concave at mouth, the ligule very short; spikes 5–10, approximate, more or less strongly drooping on peduncles varying from much longer (the lower) to shorter (the upper) than the spikes, the peduncles slender, roughish, the spikes cylindric, 1–4 cm. long, 7–9 mm. wide, the lateral with a few staminate flowers at base, the terminal varying from staminate below to nearly all staminate, closely flowered except at base, the perigynia very numerous, appressed-ascending in several to many rows; the lower 2 or 3 bracts leaf-like, sheathless or very short-sheathing, exceeding inflorescence; upper bracts much reduced; staminate scales oblong-obovate to lanceolate, acute to obtuse or mucronate, dark-purplish-brown with conspicuous, lighter-colored, nerved center and very narrow hyaline margins; pistillate scales ovate-lanceolate, acute or mucronate, similar in color, much narrower and much shorter than and nearly concealed by the perigynia; perigynia broadly ovate or obovate, 4.5–5 mm. long, 2.5–3.5 mm. wide, very thin and flattened save where distended over achene, glabrous, scarcely granular, very chartaceous, light-green, or becoming whitish or light-brown, purple-spotted, 2-ribbed (the marginal) and finely few-nerved, rounded at base, nearly sessile, short-tapering at apex, minutely beaked, the beak 0.25–0.5 mm. long, slender, purplish-tipped, entire or emarginate; achenes small, oblong-obovoid, 1.75–2 mm. long, 1 mm. wide, much narrower and shorter than perigynia, strongly stipitate, triangular with sides slightly concave below, silvery-brown, apiculate, jointed with the slender style; stigmas 3, slender, very short.

TYPE LOCALITY: Sitka, Alaska.

DISTRIBUTION: Rocky slopes, Yukon and southern Alaska to northern California, and eastward to Montana. (Specimens examined from northern California, Oregon, Washington, Idaho, Montana, British Columbia, including Vancouver Island, southern Alaska, western Yukon.)

ILLUSTRATIONS: Am. Jour. Sci. **30**: *pl. BB, f. 90;* Engler, Pflanzenreich 4^{20}: 397. *f. 62, H–L;* Hook. Fl. Bor. Am. *pl. 217;* Abrams, Ill. Fl. Pacif. St. *f. 807;* Nouv. Arch. Mus. Paris III. **8**: *pl. 13, f. 1* (excellent).

436. **Carex serratodens** W. Boott, in S. Wats. Bot. Calif. **2**: 245. 1880.

Carex bifida Boott; Olney, Proc. Am. Acad. **7**: 394. 1868. (Type from Salinas Valley, south of Monterey, California.) Not *C. bifida* Roth; Steud. Nom. ed. 1. 155. 1821.

Carex aequa C. B. Clarke, Kew Bull. Add. Ser. **8**: 86. 1908. (Type from San Mateo County, California.)

Loosely cespitose with short, ascending stolons, the culms 3–12 dm. high, slender, sharply triangular, smooth or roughened immediately beneath spikes, papillose, exceeding the leaves, aphyllopodic and strongly purplish-tinged at base, the basal sheaths breaking and becoming filamentose; sterile shoots strongly phyllopodic, very conspicuous; leaves with well-developed blades 2–5 to a fertile culm, clustered on lower fourth, the blades 1–6 dm. long, 1.75–4 mm. wide, flat, pale-green, papillose, slender, long-attenuate, roughened towards apex, not septate-nodulose, the sheaths very thin and dull-white-hyaline or yellowish-brown-tinged and red-dotted ventrally, the ligule strongly red-dotted, as long as wide; terminal spike staminate or gynaecandrous, slightly peduncled or nearly sessile, linear, 1.5–3 cm. long, 3–4.5 mm. wide, the scales oblong-obovate, from roughly short mucronate to obtuse, reddish-brown with lighter center and slightly hyaline apex; pistillate spikes 2–5, the lower 1 or 2 more or less separate, the others closely approximate, erect, sessile or the lowest slightly peduncled, oblong, 6–18 mm. long, 5–8 mm. wide, densely flowered, containing 20–40 ascending and at length spreading or squarrose perigynia in many rows; lowest bract leaflet-like, erect, from shorter than to exceeding culm, scarcely sheathing, purplish-tinged at base; the other bracts much reduced; scales ovate, acute to shortly rough-mucronate, somewhat narrower and slightly shorter than perigynia, reddish-brown with lighter center; perigynia oblong-ovate or ovate, flattened-triangular in cross-section, 3–5 mm. long, 1.5–2 mm. wide, many (about 10)-nerved, light-green, purplish-dotted, puncticulate, the walls thin, round-contracted and sessile at base, rather abruptly tapering at apex into the slender bidentate rough beak 0.5–1 mm. long, the notch narrow, the teeth erect, minute, hispidulous and purplish-tinged within; achenes obtusely triangular, obovoid, 2 mm. long, 1.5 mm. wide, loosely enveloped, in lower half of

perigynium, short-stipitate, abruptly slenderly apiculate, jointed with the straight slender style; stigmas 3, reddish-brown, slender, short.

TYPE LOCALITY: California, without locality or collector being given.

DISTRIBUTION: Open places, Jackson County, Oregon, and southward in California, mostly in the Coast Ranges, to San Bernardino County. (Specimens examined from range as given.)

ILLUSTRATIONS: Erythea 8: 69. *f. 37;* Am. Jour. Sci. IV. 48: 25. *f. 6–8;* Abrams, Ill. Fl. Pacif. St. *f. 799;* Jepson, Man. Fl. Pl. Calif. *f. 195.*

NOTE: The name *Carex bifida* Boott (Olney, Proc. Am. Acad. 7: 394. 1868) is unfortunately antedated by the rather obscurely published *Carex bifida* Roth (Steud. Nom. Ed. 1. 155. 1821), based on the imperfectly understood *Carex bipartita* F. G. Dietrich (Vollst. Lex. Gaertn. Nachtr. 2: 16. 1816; not *C. bipartita* All.). Kükenth. (Pflanzenreich 4[20]: 239. 1909) gives Dietrich's species as "species vigneae inextricabilis," which is very doubtfully accurate.

437. Carex Buxbaumii Wahl. Sv. Vet.-Akad. Nya Handl. 24: 163. 1803.

Carex polygama Schkuhr, Riedgr. 84. *pl. X, f. 76; pl. Gg, f. 76.* 1801. (Type from northwestern Europe.) Not *C. polygama* J. F. Gmel. 1791.
Carex subulata Schum. Enum. Pl. Saell. 1: 270. 1801. (Type from Denmark.) Not *C. subulata* J. F. Gmel. 1791.
Carex Buxbaumii var. *alpicola* Hartm. Scand. Fl. 41. 1820. (Type from Scandinavia.)
Physiglochis Buxbaumii Raf. Good Book 27. 1840. (Based on *Carex Buxbaumii* Wahl.)
Carex Buxbaumii var. *macrostachya* Hartm. Scand. Fl. ed. 5. 268. 1849. (Type from Scandinavia.)
Carex Buxbaumii var. *australis* Anderss. Cyp. Scand. 39. 1849. (Type from Scandinavia.)
Carex Buxbaumii var. *heterostachya* Anderss. Cyp. Scand. 39. 1849. (Type from Scandinavia.)
Carex albo-atra Muhl.; Boott, Ill. Carex 136, as synonym. 1867.
"*Carex fusca* All." L. H. Bailey, Mem. Torrey Club 1: 63. 1889.
Carex Buxbaumii var. *oenipontana* Gremblich; Appel, Mitth. Bot. Ver. Thür. 8: 43. 1895. (Type from central Europe.)
Carex Buxbaumii f. *virescens* Norman, Förh. Vid. Selsk. Christ. 27[16]: 50. 1893. (Type from Finmark.)
Carex Buxbaumii f. *mitis* Norman, Förh. Vid. Selsk. Christ. 27[16]: 50. 1893. (Type from Scandinavia.)
Carex tarumensis Franch. Bull. Soc. Philom. VIII. 7: 37, 1895. (Type from Japan.)
Carex picea Franch. Bull. Soc. Philom. VIII. 7: 39, 151. 1895. (Type from Japan.)
Carex Buxbaumii f. *macrostachya* "Hartm." Kükenth. in Engler, Pflanzenreich. 4[20]: 394. 1909. (Based on *C. Buxbaumii* var. *macrostachya* Hartm.)
Carex Buxbaumii f. *oenipontana* "Gremblich" Kükenth. in Engler, Pflanzenreich 4[20]: 394. 1909. (Based on *C. Buxbaumii* var. *oenipontana* Gremblich.)
Carex Buxbaumii f. *heterostachya* "Anderss." Kükenth. in Engler, Pflanzenreich 4[20]: 394. 1909. (Based on *C. Buxbaumii* var. *heterostachya* Anderss.)
Carex Holmiana Mackenzie, Bull. Torrey Club 36: 481. 1909. (Type from Montana.)
Carex polygama var. *heterostachya* Farwell, Rep. Mich. Acad. 19: 254. 1917. (Based on *C. Buxbaumii* var. *heterostachya* Anderss.)

Loosely cespitose and stoloniferous, the stolons long, slender, horizontal, scaly, the culms 2.5–10 dm. high, erect, very slender, sharply triangular and rough above, papillose, aphyllopodic, strongly purplish-red-tinged at base, the basal sheaths breaking and conspicuously filamentose; sterile shoots phyllopodic; leaves with well-developed blades 2–4 to a fertile culm, on lower half, not clustered, the blades erect, light-green, more or less glaucous, thin, papillose, flat with revolute margins, channeled towards the base, sharply keeled, usually 1–2 dm. long, 1.5–4 mm. wide, long-attenuate, rough on margins and towards apex, the sheaths thin, yellowish-brown-tinged and purplish-dotted ventrally, the lower sharply keeled, the ligule longer than wide; spikes 2–5, approximate or the lower more or less separate, the terminal short-peduncled, gynaecandrous, oblong-ovoid, 1–4 cm. long, 8–12 mm. wide, the basal staminate part short, the lateral pistillate, sessile or nearly so, ovoid or oblong-ovoid, 0.5–2 cm. long, 6–10 mm. wide, densely flowered, the 10–40 perigynia appressed-ascending in many rows; bracts sheathless, squamiform, dark-auricled, the lowest shorter than or equaling inflorescence, the upper much reduced; scales lanceolate, narrower than and usually longer but sometimes shorter than the perigynia, long-acuminate or aristate, varying to acute or even obtusish, purplish-black or purplish-brown with light midvein prominent to apex; perigynia elliptic or obovoid, triangular-biconvex, 2.5–4 mm. long, 1.5–2 mm. wide, glaucous-green, densely papillose, subcoriaceous, 2-ribbed (the marginal) and finely many-nerved, rounded and short-stipitate at base, rounded and abruptly very minutely beaked, the beak 0.2 mm. long, bidentulate, purplish-tipped; achenes suborbicular-obovoid, triangular with blunt angles, 1.75 mm. long, 1.5 mm. wide, nearly filling lower four fifths of perigynium body, brownish, strongly

punctate, short-tapering at base, abruptly short-apiculate, jointed with the short, slender style; stigmas 3, slender, reddish-brown, rather short.

TYPE LOCALITY: "Hab. in paludosis Sueciae, *e. g.* in Stormossan ad Oesthammar et in Lapponia ubique."

DISTRIBUTION: Sunny swamps or wet meadows or springy places in calcareous regions, Newfoundland to southern Alaska, and southward to Georgia, Arkansas, Colorado, Utah, and California; widely distributed but a very local species in many parts of its range; also widely distributed in Eurasia. (Specimens examined from Newfoundland, Miquelon, Quebec, including Anticosti, Nova Scotia, New Brunswick, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, District of Columbia, North Carolina, Ontario, Michigan, Ohio, Indiana, Wisconsin, Minnesota, Kentucky, Illinois, Iowa, Missouri, Arkansas, Manitoba, Saskatchewan, Alberta, Montana, Colorado, Utah, British Columbia, including Vancouver Island, Oregon, California.)

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 718;* ed. 2. *f. 1043;* Rob. & Fern. Man. *f. 430;* Schkuhr, Riedgr. *pl. X, f. 76; pl. Gg, f. 76;* Rep. N. J. Mus. **1910:** *pl. 25, f. 4;* Fl. Dan. *pl. 1406;* Boott, Ill. Carex 136. *pl. 438, 439;* Abrams, Ill. Fl. Pacif. States *f. 800;* Jour. Russe Bot. **1911:** 105. *f. 86;* Sturm, Deuts. Fl. **61:** *pl. 9;* Ostenf. Fl. Arct. 67. *f. 35;* Reichenb. Ic. Fl. Germ. **8:** 235. *f. 589;* Anderss. Cyp. Scand. *pl. 6, f. 35;* Engl. Bot. Suppl. *pl. 2885; pl. 1637;* Benth. Handb. Brit. Fl. ed. 2. *pl. 1114;* Coste, Fl. Fr. *f. 3842;* Hegi, Ill. Fl. Mittel-Eur. *pl. 48, f. 2;* Hallier, Deuts. Fl. *pl. 434;* Karst. Deuts. Fl. 351. *f. 177 (3).*

NOTE: *Carex subulata* Schum. is by a typographical error cited by Boott (Ill. Carex 136) as *Carex tubulata* Schum.

61. **Acutae** Fries, Fl. Scan. 191. 1835; Tuckerm. Enum. Caric. 11. 1843; Carey, in A. Gray, Man. 546. 1848; L. H. Bailey, Proc. Am. Acad. **22:** 82. 1886; Kükenth. in Engler, Pflanzenreich **4**[20]: 296. 1909; Mackenzie, in Rydb. Fl. Rocky Mts. 138. 1917; Mackenzie, Erythea **8:** 72. 1922. LEIMONASTES Reichenb. Fl. Sax. 45. 1842. MICRORRHYNCHAE Drejer, Symb. Car. 9. 1844; L. H. Bailey, Proc. Am. Acad. **22:** 76, in large part. 1886; Holm, Am. Jour. Sci. IV. **16:** 457. 1903. AEORASTACHYAE Drejer, Symb. Car. 9, in small part. 1844; Holm, Am. Jour. Sci. IV. **16:** 457, in small part. 1903. AURITAE Heuffel, Flora **27:** 536. 1844. RIGIDAE Fries, Summa Veg. Scand. 72, 232. 1845; L. H. Bailey, Proc. Am. Acad. **22:** 77, in part. 1886; Kükenth. in Engler, Pflanzenreich **4**[20]: 299. 1909. CAESPITOSAE Fries, Summa Veg. Scand. 226. 1845. PROLIXAE Fries, Summa Veg. Scand. 228. 1845. AQUATILES Fries, Summa Veg. Scand. 229. 1845. IDIOMORPHAE O. F. Lang, Linnaea **24:** 546. 1851. LIMNONASTES Pax, in E. & P. Nat. Pfl. **2**[2]: 124. 1887. FORSICULAE Franchet, Nouv. Arch. Mus. Paris III. **10:** 103. 1898; Kükenth. in Engler, Pflanzenreich **4**[20]: 334. 1909. LIMONONASTES Asch. & Graebn. Syn. Mitteleur. Fl. **2**[2]: 83. 1902. EUVIGNEA C. B. Clarke, Jour. Linn. Soc. **37:** 3. 1904; C. B. Clarke, Kew Bull. Add. Ser. **8:** 141. 1908, with minor groups as follows: (1) VULGARES (A) MUTICAE, *a* GOODENOIDES, *b* RIGIDAE, *c* AQUATILES, *d* ACUTAE, *e* NOTHAE; (B) *f* LONGIGLUMAE, *g* ARISTELLATAE; (2) BIDENTES; (3) LONGIROSTRES; (4) INSIGNES. PRAELONGAE Kükenth. in Engler, Pflanzenreich **4**[20]: 345. 1909. AEORASTACHYAE APERTAE Holm, Am. Jour. Sci. IV. **49:** 431. 1920; Holm, Am. Jour. Sci. V. **2:** 285, 288. 1921. AEORASTACHYAE MAGNIFICAE Holm, Am. Jour. Sci. IV. **49:** 431. 1920; Holm, Am. Jour. Sci. V. **2:** 285, 291, in part. 1921. AEORASTACHYAE PHACOTAE Holm, Am. Jour. Sci. IV. **49:** 431. 1921. AEORASTACHYAE TERNARIAE Holm, Am. Jour. Sci. IV. **49:** 431. 1920; Holm, Am. Jour. Sci. V. **2:** 322. 1921. Treated as part of *Vignea* Beauv. by Lestiboudois (Ess. Fam. Cyp. 22. 1819); as a genus *Vignantha* by Schur (Enum. Pl. Transsilv. 705. 1886); and as a genus *Limivasculum* subgenus *Limivasculum* by Börner (Abh. Nat. Ver. Bremen **21:** 268, 269. 1913.)

Culms leafy below, aphyllopodic or phyllopodic; terminal one to several spikes staminate (rarely gynaecandrous), linear, the others pistillate, linear to cylindric or oblong, closely many-flowered, sessile or peduncled; bracts sheathless or rarely short-sheathing, leafy or squamiform, bi-auriculate and often darkened at the base; perigynia membranaceous to coriaceous, plano-convex or bi-convex or turgid, elliptic to obovate, 2-ribbed (the marginal and otherwise nerveless or nerved or ribbed, margined, puncticulate, beakless or abruptly minutely beaked, the orifice entire to deeply bidentate; achenes lenticular, apiculate, jointed with the straight, slender, sometimes exserted style, its base not enlarged; stigmas 2.

A group of numerous species characteristic of open swamps, represented in all the cooler portions of the northern hemisphere and sometimes found in the mountains in the tropics; probably best developed in Asia, but also well represented in North America, forming

a great part of the sedge meadows. The group is also represented by several species in the cooler southern parts of South America and several species are found in the cooler parts of Australasia. It barely reaches northern Africa, but several species are known in the mountains of Madagascar. A species is known in the Hawaiian Islands. Its study presents unusual difficulties. The fundamental distinguishing characters are found in the underground parts and in the lower parts of the culms; these are unfortunately usually not gathered by collectors. The scales and spikes vary much in size and shape in the same species, and distinctions based upon them need an unusual amount of verification by a study of abundant material.

Flowering culms arising from the center of previous year's tufts of leaves and surrounded at base with dried-up leaves of previous year.
- Lower sheaths of flowering culms not breaking ventrally and becoming filamentose.
  - Lowest bract shorter than inflorescence; pistillate scales with obsolete or slender midvein; strongly stoloniferous, the culms arising one to few together, low. — I. RIGIDAE.
  - Lowest bract equaling or exceeding inflorescence; pistillate scales with slender midvein or broader light-colored center; culms taller, less stiff, in larger clumps. — II. VULGARES.
- Lower sheaths of flowering culms (of season's growth) breaking ventrally and becoming filamentose. — III. SENTAE.

Flowering culms all or mostly arising laterally and not enveloped at base by the previous year's tufts of leaves.
- Pistillate spikes erect; culms slender to the base or rarely stoutish.
  - Lowest bract poorly developed, usually much exceeded by inflorescence. — IV. STRICTAE.
  - Lowest bract conspicuously developed, from somewhat shorter than to exceeding inflorescence. — V. FORSICULAE.
- Lower pistillate spikes or all nodding or curved; culms stout below. — VI. PRAELONGAE.

I. RIGIDAE.

Dried first-year leaf-blades at base of fertile culms stiff, rigid and conspicuous, concealing the base of culms; fertile-culm leaves all blade-bearing, the lower sheaths not purplish or hispidulous dorsally.
- Perigynia plano-convex, puncticulate, appressed.
  - Perigynia ovoid or obovoid. — 438. *C. concolor.*
  - Perigynia elliptic. — 439. *C. anguillata.*
- Perigynia soon turgid, papillose, more spreading.
  - Culms stiff; perigynia squarrose-spreading, the beak 0.2–0.5 mm. long, often bent; scales obovate, exceeded by the perigynia. — 440. *C. scopulorum.*
  - Culms slender; perigynia spreading-ascending, the beak 0.1–0.2 mm. long; scales lanceolate or oblong-lanceolate, exceeding the perigynia. — 441. *C. Chimaphila.*

Dried first-year leaf-blades at base of fertile culms much desiccated, not stiff, rigid, or conspicuous, not concealing the base of the culms; lowest fertile-culm leaves (of season's growth) not blade-bearing, the lower sheaths purplish and more or less strongly hispidulous dorsally.
- Lower bladeless sheaths of fertile culms (of season's growth) inconspicuous and largely hidden by old dead leaves; lower sheaths sparingly hispidulous; culms sharply triangular and rough above.
  - Perigynia plano-convex or flattened-biconvex, appressed-ascending; sterile shoots phyllopodic.
    - Perigynia membranaceous, appressed, straw-colored; scales conspicuous. — 442. *C. gymnoclada.*
    - Perigynia subcoriaceous, spreading, olive-green; scales very short, largely hidden by perigynia. — 443. *C. accedens.*
  - Perigynia deeply concave ventrally, convex dorsally, curved outwardly and spreading; sterile shoots aphyllopodic. — 444. *C. campylocarpa.*
- Lower bladeless sheaths of fertile culms (of season's growth) conspicuous; sterile shoots strongly aphyllopodic.
  - Lower bladeless sheaths very long, strongly hispidulous; leaf-blades dull-bluish-green, very long (often 6–9 dm.); culms narrowly wing-angled and very serrulate; perigynia exceeding scales. — 445. *C. prionophylla.*
  - Lower bladeless sheaths short, hispidulous; leaf-blades light-green, 1.5–3.5 dm. long; culms sharply triangular; scales exceeding perigynia. — 446. *C. miserabilis.*

II. VULGARES.

Perigynia conspicuously nerved or ribbed ventrally, the nerves raised.
- Perigynia membranaceous, slenderly nerved, the beak apiculate, entire.
  - Plants cespitose or with ascending stolons; lowest bract exceeding culm; perigynia more or less slenderly stipitate.

Lowest bract short-sheathing; sterile shoots phyllopodic; culms densely cespitose; pistillate scales brownish-red-tinged; perigynia short-stipitate, few-ribbed on both faces, oval-ovate. 447. *C. lenticularis.*
Lowest bract sheathless or nearly so; sterile shoots aphyllopodic; culms less densely cespitose; pistillate scales blackish.
Perigynia short-stipitate, several-ribbed on both faces, suborbicular; achenes sessile. 448. *C. paucicostata.*
Perigynia strongly stipitate, ovate; achenes substipitate.
Perigynia light-green or in age glaucous-green, nerved, very minutely granular; scales long persistent. 449. *C. Kelloggii.*
Perigynia yellowish-green, ribbed, papillate-roughened; scales deciduous. 450. *C. Hindsii.*
Plants strongly stoloniferous, with horizontal stolons; perigynia from nearly sessile to strongly stipitate; lowest bract shorter than or but moderately exceeding the inflorescence. 451. *C. acuta.*
Perigynia coriaceous, strongly ribbed, the beak broad, bidentate; lowest bract about equaling inflorescence. 452. *C. nebraskensis.*
Perigynia nerveless ventrally or with obscure impressed nerves.
Perigynia turgid; scales divaricate. 453. *C. aperta.*
Perigynia not turgid; scales appressed.
Perigynia ovate-orbicular, olive-green, scarcely 2 mm. long. 454. *C. interrupta.*
Perigynia narrowly elliptic to broadly ovate or obovate, light-green to straw-colored, 2.5–3.5 mm. long.
Sheaths usually strongly dark-colored ventrally at mouth; lower pistillate spikes subcernuous on long peduncles; pistillate scales whitened at tip, especially in age; long horizontal stolons absent.
Culms very rough on the angles; blades obscurely septate-nodulose, the sheaths smooth dorsally; pistillate spikes usually 2, 1–3 cm. long, the perigynia 25–50; lowest bract shorter than culm. 455. *C. Suksdorfii.*
Culms smooth or roughened above; blades strongly septate-nodulose, the sheaths hispidulous dorsally; pistillate spikes 3–5, 2–9 cm. long, the perigynia 50–150; lowest bract usually exceeding inflorescence. 456. *C. sitchensis.*
Sheaths not colored ventrally at mouth; lower pistillate spikes not nodding; pistillate scales not whitened at tip; sending forth long horizontal stolons.
Perigynia narrowly to very broadly elliptic, broadest below apex, less than 3 mm. long, 1–1.5 mm. wide. 457. *C. aquatilis.*
Perigynia strongly obovate, broadest at the apex, 3 mm. long, 1.75 mm. wide. 458. *C. substricta.*

III. SENTAE.

Beak of perigynium bidentate, hispidulous between the teeth; pistillate scales mostly rough-cuspidate or rough-awned. 459. *C. Barbarae.*
Beak of perigynium entire or emarginate, not hispidulous between the teeth; pistillate scales not rough-cuspidate or rough-awned.
Culms cespitose; long horizontal stolons present; leaf-blades 3–12 mm. wide; lowest bract conspicuously developed; perigynia few- to several-nerved both dorsally and ventrally.
Lower leaf-sheaths (of year's growth) sharply keeled dorsally; culms very stout below, 1–1.5 m. high; leaf-blades 6–12 mm. wide. 460. *C. Schottii.*
Lower leaf-sheaths (of year's growth) rounded dorsally; culms more slender, 3–10 dm. high; leaf-blades 3–5 mm. wide. 461. *C. senta.*
Culms very densely cespitose; long horizontal stolons absent; leaf-blades 1–2 mm. wide; lowest bract very short, conspicuously black-auricled; perigynia nerveless (except for marginal ribs). 462. *C. lugens.*

IV. STRICTAE.

Beak of perigynium entire or emarginate.
Pistillate scales straw-colored to reddish-brown or purplish-black with lighter center; if purplish-black, plants with long horizontal stolons (not Pacific Slope).
Perigynia inflated, brownish at maturity, minutely granular towards apex; achenes suborbicular; plants rather loosely cespitose with short ascending stolons; pistillate scales divaricate at maturity; ligule as long as wide or somewhat longer; lower sheaths not at all or very sparingly filamentose. 463. *C. Haydeni.*
Perigynia unequally biconvex, not inflated, green or straw-colored; achenes oblong-obovate or oblong-quadrate.
Lower sheaths not filamentose ventrally, strongly septate-nodulose dorsally; ligule much wider than long; perigynia slightly granular-roughened towards apex only, soon straw-colored; plants forming beds; long horizontal stolons numerous; leaf-blades light-green. 464. *C. Emoryi.*

Lower sheaths filamentose ventrally; ligule much longer than wide; perigynia granular-roughened, green.
Plants forming beds; long horizontal stolons numerous; leaf-blades glaucous-green, light-green, or blue-green, flat or nearly so to base; leaf-sheaths markedly hispidulous ventrally and with a narrow hyaline jagged-ciliate margin at mouth. 465. *C. strictior*
Culms very densely cespitose, forming dense tussocks, long horizontal stolons usually not conspicuous; leaf-blades deep-green, channeled and keeled towards base; leaf-sheaths smooth ventrally and without a narrow hyaline jagged-ciliate margin at mouth. 466. *C. stricta*
Pistillate scales purplish-black with light-colored midvein (sometimes nearly obsolete); long horizontal stolons absent; achenes suborbicular or broadly obovate; ligule somewhat longer than to much shorter than wide; leaf-blades light-green or glaucous-green (Pacific Slope).
Culms very densely cespitose; lowest bract often much shorter than inflorescence; perigynia conspicuously slenderly few- to several-nerved both dorsally and ventrally.
Perigynia inflated, 2.5 mm. long, broadly oval-ovoid or broadly obovoid. 467. *C. suborbiculata.*
Perigynia not inflated, 2.5–4 mm. long, plano-convex, oblong-obovate to obovate. 468. *C. nudata.*
Culms loosely cespitose from a creeping rootstock with short ascending stolons; lowest bract about equaling inflorescence; perigynia obscurely slenderly nerved. 469. *C. acutinella.*
Beak of perigynium bidentulate; pistillate scales purplish-black with lighter center; culms loosely cespitose, without long horizontal stolons; achenes orbicular-obovate; perigynia not inflated (Mexican). 470. *C. Endlichii.*

V. FORSICULAE

Represented by one species in our area. 471. *C. eurycarpa.*

VI. PRAELONGAE.

Represented by one species in our area. 472. *C. torta.*

438. **Carex concolor** R. Br. Chlor. Melv. 25. 1823.

Carex rigida Gooden. Trans. Linn. Soc. **2**: 193. *pl. 22, f. 10.* 1794. (Type from Scotland.) Not *C. rigida* Schrank, 1789.
"*Carex saxatilis* L." Schkuhr, Riedgr. **1**: 54. 1801. (Plants from Europe and Greenland.)
Carex rigida var. *recurva* S. F. Gray, Nat. Arr. Brit. Pl. **2**: 51. 1821. (Type from Great Britain.)
Carex Bigelovii Torr.; Schw. Ann. Lyc. N. Y. **1**: 67. 1824. (Type from the White Mountains, New Hampshire.)
Carex Washingtoniana Dewey, Am. Jour. Sci. **10**: 272. *pl. D, f. 14.* 1826. (Type from Mt. Washington, New Hampshire.)
Vignea saxatilis Reichenb. in Mössler, Handb. ed. 2. 1624, in part. 1829.
"*Carex Washingtonia* Dewey" Eaton, Man. ed. 5. 156. 1829. (Change of spelling.)
Carex saxatilis var. β Torr. Ann. Lyc. N. Y. **3**: 397. 1836. (Based on *C. Bigelovii* Torr.)
Carex saxatilis var. *rigida* Laest. Nova Acta Soc. Sci. Upsal. **11**: 287. 1839. (Based by inference on *C. rigida* Gooden.)
Carex saxatilis var. α Laest. Nova Acta Soc. Sci. Upsal. **11**: 287. 1839. (Type from Sweden.)
Carex saxatilis var. *inferalpina* Laest. Nova Acta Soc. Sci. Upsal. **11**: 287. 1839. (Type from Lapland.)
Olotrema Washingtoniana Raf. Good Book 25. 1840. (Based on *Carex Washingtoniana* Dewey.)
Onkerma rigida Raf. Good Book 27. 1840. (Based on *Carex rigida* Gooden.)
Neskiza saxatilis Raf. Good Book 27, in part. 1840.
Diemisa concolor Raf. Good Book 27. 1840. (Based on *Carex concolor* R. Br.)
Carex caespitosa var. *elliptica* Drejer, Nat. Tidssk. **3**: 456. 1841. (Type from Igalliko Bay, Greenland.)
Carex saxatilis var. *typica* Drejer, Nat, Tidssk, **3**: 460. 1841. (Type from Lapland.)
Carex saxatilis var. *infuscata* Drejer, Nat. Tidssk. **3**: 460. 1841. (Type from Greenland.)
Carex saxatilis var. *pudica* Drejer, Nat. Tidssk. **3**: 461. 1841. (Type from Iceland.)
Carex saxatilis var. *lutosa* Drejer, Nat. Tidssk. **3**: 461. 1841. (Type from Greenland.)
Carex hyperborea Drejer, Nat. Tidssk. **3**: 461. 1841. (Type from Greenland.)
Carex rigida var. *inferalpina* Fries, Mant. **3**: 147. 1842. (Based on *C. saxatilis* var. *inferalpina* Laest.)
Carex rigida var. *saxatilis* Fries, Mant. **3**: 148. 1842. (Based on *C. saxatilis* var. *rigida* Laest.)
Carex rigida var. *glacialis* Fries, Mant. **3**: 148. 1842. (Based on *C. saxatilis* var. α Laest.)
Carex rigida var. *Bigelovii* Tuckerm. Enum. Caric. 19. 1843. (Based on *C. Bigelovii* Torr.)
Carex hyperborea f. *latifolia* Anderss. Cyp. Scand. 52. 1849. (Type from Lapland.)
Carex hyperborea var. *paradoxa* Drejer; Liebm. Fl. Dan. **42**: 7. *pl. 2483.* 1849. (Type from Greenland.)
Carex Friedrichsthaliana Steud. Syn. Cyp. 211. 1855. (Type from Greenland.)

Carex saxatilis var. *pallidior a. major* Blytt, Norges Fl. 1: 210. 1861. (Type from Norway.)
Carex saxatilis var. *pallidior b. minor* Blytt, Norges Fl. 1: 210. 1861. (Type from Norway.)
Carex dubitata Dewey, in Wood, Class-Book, ed. 1861. 755. 1861. (Type from the White Mountains, New Hampshire.)
Vignantha rigida Schur, Enum. Pl. Transsilv. 705. 1866. (Based on *Carex rigida* Gooden.)
Carex vulgaris var. *hyperborea* Boott, Ill. Carex 167. 1867. (Based on *C. hyperborea* Drejer.)
Carex vulgaris var. *alpina* Boott, Ill. Carex 167. 1867. (Based on *C. rigida* Gooden.)
Carex vulgaris f. Böck. Linnaea 40: 417. 1876. (Based on *C. Bigelovii* Torr.)
Carex Drejeriana Lange, Fl. Dan. 50: 10. *pl. 2975*. 1880. (Type from Greenland.)
Carex hyperborea var. *tennifolia* Lange, Consp. Fl. Groenl. 145. 1880. (Type from Greenland.)
Carex Warmingii Holm, Bot. Jahrb. 8: 294. 1887. (Type from western Greenland.)
Carex Fyllae Holm, Bot. Jahrb. 8: 294. 1887. (Type from western Greenland.)
Carex spiralis Ewing, Proc. Nat. Hist. Soc. Glasgow II. 2: 110. 1888. (Type from Scotland.)
Carex hyperborea f. *cuspidata* Rosenv. Consp. Fl. Greenl. 723. 1892. (Type from Greenland.)
Carex caespitosa var. *rigida* Benth. & Hook. f. Handb. Brit. Fl. ed. 6. 496. 1896. (Based on *C. rigida* Gooden.)
Carex rigida f. *aggregata* Almq.; Neuman, Sv. Fl. 707. 1901. (Type from Sweden.)
Carex rigida f. *juncelliformis* Almq.; Neuman, Sv. Fl. 707. 1901. (Type from Sweden.)
Carex rigida f. *glacialis* "Fries" Kükenth. in Engler, Pflanzenreich 4[20]: 301. 1909. (Based on *C. rigida* var. *glacialis* Fries.)
Carex rigida f. *infuscata* "Drejer" Kükenth. in Engler, Pflanzenreich 4[20]: 301. 1909. (Based on *C. saxatilis* var. *infuscata* Drejer.)
Carex rigida f. *lutosa* "Drejer" Kükenth. in Engler, Pflanzenreich 4[20]: 301. 1909. (Based on *C. saxatilis* var. *lutosa* Drejer.)
Carex rigida f. *pudica* "Drejer" Kükenth. in Engler, Pflanzenreich 4[20]: 301. 1909. (Based on *C. saxatilis* var. *pudica* Drejer.)
Carex rigida var. *concolor* Kükenth. in Engler, Pflanzenreich 4[20]: 301. 1909. (Based on *C. concolor* R. Br.)
Carex rigida var. *concolor* f. *latifolia* Kükenth. in Engler, Pflanzenreich 4[20]: 302. 1909. (Based on *C. hyperborea* f. *latifolia* Anderss.)
Carex rigida var. *concolor* f. *Drejeriana* Kükenth. in Engler, Pflanzenreich 4[20]: 302. 1909. (Based on *C. Drejeriana* Lange.)
Carex rigida var. *concolor* f. *paradoxa* Kükenth. in Engler, Pflanzenreich 4[20]: 302. 1909. (Based on *C. hyperborea* var. *paradoxa* Drejer.)
Carex rigida var. *concolor* f. *cuspidata* Kükenth. in Engler, Pflanzenreich 4[20]: 302. 1909. (Based on *C. hyperborea* f. *cuspidata* Rosenv.)
Carex Hartzii Gand. Bull. Soc. Bot. Fr. 66: 296. 1920. (Type from Greenland.)

Strongly stoloniferous, the culms arising one to few together, the stolons horizontal or ascending, stoutish or slender, purplish-red, scaly, the culms stout, stiffly erect, 1–4 dm. high, papillate, sharply triangular, usually exceeding the leaves, smooth or roughened above, strongly phyllopodic, brownish-purple-tinged at base, the dried-up leaves of the previous year numerous and very conspicuous, all the leaves of the year blade-bearing; sterile shoots aphyllopodic; leaves with well-developed blades usually 8–20 to a fertile culm, clustered near the base, 3–5 of the flowering year, the rest of the previous year, sparingly septate-nodulose, the blades ascending or spreading, thickish, stiff, flat with revolute margins, bluish-green, papillate, 0.5–3 dm. long, 2–8 mm. wide, short-tapering, smooth except at apex, the sheaths dull-whitish or light-yellowish-brown-tinged ventrally, not hispidulous dorsally, the ligule as long as wide; terminal spike staminate (rarely with a few perigynia), usually strongly peduncled, linear, 0.5–2.5 cm. long, 2–4 mm. wide, the scales obovate or oblong-obovate, very obtuse, brownish-black with lighter center and usually narrow hyaline margins, especially at apex; pistillate spikes 1–6, usually 2 or 3, approximate or the lowest more or less distant, erect, the upper sessile or nearly so, the lower short-peduncled, narrowly oblong or linear, 0.5–3 cm. long, 3–6-mm. wide, the upper often staminate at apex, closely flowered, the perigynia 10–40, appressed-erect in few to several rows; lower bract leaflet-like, normally shorter than the culm, sheathless, black-auricled, the others much reduced, scale-like; scales oblong-obovate, 3–4 mm. long, 2 mm. wide, strongly puncticulate, blackish with lighter midrib and very narrow hyaline margins, rarely somewhat paler, usually very obtuse, rarely somewhat mucronate, usually wider and longer than and completely concealing perigynia, but sometimes narrower or shorter, slightly enveloping perigynia; perigynia unequally biconvex, not turgid, more or less flattened, oblong-obovoid, or obovoid, 2.5–3.5 mm. long, 1.5–2 mm. wide, 2-ribbed (the marginal), otherwise nerveless, puncticulate, membranaceous, light-green, very often strongly purplish-black-spotted or blotched above, rounded to a nearly sessile or substipitate base, not serrulate above, abruptly minutely apiculate, the beak 0.1–0.3 mm. long, entire, straight, purplish-black; achenes lenticular, oval or obovoid, 1.5–2 mm. long, 1 mm. wide, filling more than three fourths of lower part of perigynium, light-brown, granular, broadly substipitate, slightly

apiculate, jointed with the short, straight, often slightly exserted style; stigmas 2, slender, white or becoming yellowish-brown.

TYPE LOCALITY: Melville Island, Arctic America.

DISTRIBUTION: Sunny rocky shores and exposed places; arctic-alpine, throughout the colder parts of Eurasia and North America, and southward in the higher mountains. In North America it ranges from Greenland to Alaska, and southward to the mountains of New Hampshire and northern New York. (Specimens examined from Greenland, Ungava, Labrador, Newfoundland, Quebec, Maine, New Hampshire. Vermont, New York, Mackenzie, Alaska.)

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 725;* ed. 2. *f. 1051;* Engler, Pflanzenreich 4[20]: 300. *f. 46, A–E;* Schkuhr, Riedgr. *pl. U, f. 71; pl. J, f. 40; pl. Tt, f. 40;* Boott, Ill. Carex 167. *pl. 568–574;* Fl. Dan. *pl. 159, 2482, 2483, 2975;* Jour. Russe Bot. 1911: 81. *f. 63;* Ostenf. Fl. Arct. 77, 78. *f. 52, 53;* Reichenb. Ic. Fl. Germ. 8: *pl. 225, f. 578;* Am. Jour. Sci. 10: *pl. D, f. 14;* Trans. Linn. Soc. 2: *pl. 22, f. 10;* Anderss. Cyp. Scand. *pl. 5, f. 46* (*C. rigida*), *f. 47* (*C. hyperborea*); Engl. Bot. ed. 2. *pl. 1640;* Hegi, Ill. Fl. Mittel-Eur. *pl. 48, f. 1;* Karst. Deuts. Fl. 341. *f. 170* (7); Hallier, Deuts. Fl. *pl. 432.*

NOTE: One of the most widely distributed far northern species. Like so many northern plants, its size and development depend on its place of growth. Plants in wind-swept localities are much smaller and more rigid than plants in near by localities a little more protected from the very strong northern winds. As a result many names have been proposed of no systematic value.

439. **Carex anguillata** Drejer, Nat. Tidssk. 3: 454. 1841.

Carex rigida var. *concolor* f. *anguillata* Kükenth. in Engler, Pflanzenreich 4[20]: 302. 1909. (Based on *C. anguillata* Drejer.)

Loosely cespitose, the stolons stoutish, scaly, reddish-brown, horizontally ascending, the culms one to few together, 1–2.5 dm. high, slender, stiff, erect, papillate, smooth, triangular, exceeding leaves, strongly phyllopodic, purplish-red-tinged at base, the lower leaves longer than the upper; leaves with well-developed blades 8–15 to a fertile culm, on the lower third; sparingly and obscurely septate-nodulose, the blades mostly 4–12 cm. long, 2–3.5 mm. wide, channeled above, the margins revolute, firm, yellowish-green, rather long-tapering, ascending or somewhat spreading, sparingly roughened at tip only, the sheaths smooth dorsally, whitish or slightly yellow-tinged ventrally, the ligule wider than long; staminate spike solitary, strongly peduncled, linear, 1–1.5 cm. long, 3 mm. wide, the scales oblong-obovate, obtuse, reddish-brown with wide conspicuous white-hyaline margins and lighter 1–3-nerved center not extending to apex; pistillate spikes 1–3, strongly separate, linear-oblong, 1–3 cm. long, 3–4 mm. wide, erect-appressed, the upper short-peduncled, the lower on a long, slender but stiff peduncle, mostly of its own length, closely flowered above, mostly very loosely towards base, the perigynia 12–30, erect-appressed in few rows; lowest bract leaflet-like, sheathless, reddish-brown-tinged at base, much shorter than head; upper bract much reduced, strongly bi-auriculate and dark-reddish-brown-tinged; scales closely appressed, broadly ovate, very obtuse, somewhat narrower and somewhat shorter than perigynia, dark-reddish-brown with very narrow hyaline margins and 1-nerved lighter midvein not extending to apex; perigynia elliptic, plano-convex, much flattened, 2.5 mm. long, 1.5 mm. wide, 2-ribbed (the marginal), otherwise nerveless, membranaceous, not at all inflated, not granular, pale or glaucous-green below, more or less yellowish-brown-tinged above, rounded and substipitate at base, abruptly apiculate, the beak 0.1–0.2 mm. long, straight, entire; achenes lenticular, suborbicular, 1.5 mm. long, nearly as wide, closely enveloped, filling lower three quarters of perigynium, broadly short-stipitate, brownish, apiculate, jointed with the short, slender, short-exserted style; stigmas 2, slender.

TYPE LOCALITY: Iceland, *Steenstrup.*

DISTRIBUTION: Open rocky places, North Labrador and Keewatin, Iceland. (Specimens examined from Keewatin, Fullerton and Wager Inlet, Hudson Bay.)

ILLUSTRATION: Fl. Dan. *pl. 2846.*

440. **Carex scopulorum** Holm, Am. Jour. Sci. IV. 14: 422; 421. *f. 1–6.* 1902.

Carex Tolmiei var. *subsessilis* L. H. Bailey, Mem. Torrey Club 1: 47. 1889. (As to Colorado specimens only.)

Strongly stoloniferous, the culms one to few together, the stolons stout, ascending or horizontal, purplish-red, scaly, the culms stiffly erect, 1–4 dm. high, stout, papillate, exceeding

the leaves, sharply triangular, smooth or roughened above, strongly phyllopodic, brownish or dull-purplish-brown-tinged at base, the dried-up leaves of the previous year numerous and conspicuous, all the leaves of the year blade-bearing; sterile shoots aphyllopodic; leaves with well-developed blades usually 8–15 to a fertile culm, 3–5 of the flowering year, the rest of the previous year, clustered near the base, slightly septate-nodulose, the blades erect, thickish, flat with revolute margins, light-green, papillate, 0.5–3 dm. long, 3–7 mm. wide, short-tapering, roughened at apex only, the sheaths light-yellowish-brown-tinged ventrally, not hispidulous dorsally, the ligule as wide as long; staminate spike solitary, sessile or more or less peduncled, linear or linear-clavate, 1–2.5 cm. long, 2.5–4 mm. wide, often partly pistillate, the scales oblong-obovate, obtuse to acute, black, usually slightly hyaline at apex, the midvein whitish, usually prominent; pistillate spikes 2–6, usually 2–4, closely aggregated or the lowest occasionally separate, erect, the upper sessile or nearly so, the lower short-peduncled, oblong, 1–2.5 cm. long, 6–7 mm. wide, the uppermost often somewhat androgynous, closely many-flowered, the perigynia squarrose-spreading in many rows; lower bracts squamiform, much shorter than the culm, sheathless, conspicuously black-biauriculate; upper bracts reduced, scale-like; scales obovate, usually obtuse, black, sometimes with lighter midrib and very narrow hyaline margins, from nearly the length of to much shorter than but narrower than the perigynia; perigynia strongly biconvex and turgid, orbicular or broadly obovoid, 2.5–3.5 mm. long, 1.5–2 mm. wide, 2-ribbed (the marginal), otherwise nerveless, papillose, membranaceous, pale at base, purplish-black-spotted or blotched above, rounded to a nearly sessile or substipitate base, not or very sparingly remotely serrulate above, apiculate, the beak 0.2–0.5 mm. long, entire, purplish-black, often abruptly bent; achenes normally lenticular, suborbicular or broadly obovoid, 1.25 mm. long, nearly as wide, nearly filling lower three quarters of perigynium, light-brown, sessile, minutely apiculate, jointed with the slender short-exserted style; stigmas 2, slender, whitish or becoming yellowish-brown.

TYPE LOCALITY: "We found this species very abundant in the region of Clear Creek Canon (Colo.), also near Leadville, (Colo.); it grows in thickets of willows along creeks at an elevation of between 3600 and 3900 met." (Holm).

DISTRIBUTION: High mountains, from Colorado and Wyoming to Nevada and the Sierra Nevada of California (Tulare County). (Specimens examined from Colorado, Wyoming, Montana, Washington, Nevada, California.)

ILLUSTRATIONS: Am. Jour. Sci. IV. **14**: 421. *f. 1–6;* Engler, Pflanzenreich 4^{20}: 300. *f. 46 F;* Abrams, Ill. Fl. Pacific St. *f. 808.*

441. **Carex Chimaphila** Holm, Am. Jour. Sci. IV. **16**: 33; 32. *f. 11–13.* 1903.

Carex scopulorum var. *Chimaphila* Kükenth. in Engler, Pflanzenreich 4^{20}: 303. 1909. (Based on *C. Chimaphila* Holm.)

Strongly stoloniferous, the culms in small clumps, the stolons long, stout, horizontal or ascending, purplish-red, scaly, the culms stoutish, but not stiff, 2–5 dm. high, papillate, much exceeding the leaves, usually roughened above, strongly phyllopodic, purplish-brown-tinged at base, the dried-up leaves of the previous year numerous and conspicuous, all the leaves of the year blade-bearing; sterile shoots aphyllopodic; leaves with well-developed blades 10–15 to a fertile culm, 3–5 of the flowering year, the rest of the previous year, clustered near the base, slightly septate-nodulose, the blades erect, thickish, flat with slightly revolute margins, light-green, papillate, usually 1–3 dm. long, 3–6 mm. wide, short-tapering, roughened towards the apex only, the sheaths light-yellowish-brown-tinged ventrally, smooth or very nearly so dorsally, the ligule as long as wide; staminate spike solitary, often partly pistillate below or above, short-peduncled or sessile, linear-oblong, 1–2.5 cm. long, the staminate part 4–6 mm. wide, the scales oblong-oblanceolate, acute to short-cuspidate, black with lighter midrib and very narrowly hyaline margins; pistillate spikes 2–4, contiguous or the lowest somewhat remote, erect, the upper peduncled, the lower on peduncles shorter than the spikes, oblong, 1–3 cm. long, 7–10 mm. wide, densely flowered, containing 20–40 spreading-ascending perigynia in several to many rows; lowest bract leaflet-like, sheathless, dark-auricled, exceeded by culm, the upper much reduced; scales lanceolate or oblong-lanceolate, acute to acuminate, about

half the width of but usually noticeably exceeding perigynia, black throughout or usually with lighter midrib and hyaline apex and upper margins; perigynia flattened-biconvex and turgid, broadly obovoid or suborbicular, 2.5–3.5 mm. long, 1.5–2 mm. wide, 2-ribbed (the marginal), otherwise nerveless, papillose, membranaceous, pale towards base, purplish-black-blotched above, round-tapering to a substipitate base, remotely very sparingly serrulate above, truncate-rounded at apex, and abruptly very minutely beaked, the beak 0.1–0.2 mm. long, entire, purplish-black; achenes normally lenticular, suborbicular or broadly obovoid, 2 mm. long, 1.5 mm. wide, nearly filling lower two thirds of perigynium, light-brown, sessile, minutely apiculate, jointed with the slender, short-exserted style; stigmas 2, slender, whitish or becoming yellowish-brown.

TYPE LOCALITY: Long's Peak, Colorado (*Holm*).
DISTRIBUTION: Rocky slopes and meadows, high mountains, Colorado and Wyoming. (Specimens examined from Colorado, Wyoming.)
ILLUSTRATIONS: Am. Jour. Sci. IV. **16**: 32. *f. 11–13.*

442. **Carex gymnoclada** Holm, Am. Jour. Sci. IV. **14**: 424. *f. 12–14.** 1902.

"*Carex vulgaris* var. *alpina* Boott" W. Boott in S. Wats. Bot. Calif. **2**: 240. 1880.
Carex vulgaris var. *bracteosa* L. H. Bailey, Proc. Am. Acad. **22**: 81. 1886. (Type from Ebbett's Pass, California.)
Carex nudata var. *angustifolia* L. H. Bailey, Mem. Torrey Club **1**: 16. 1889. (As to Lyall plant only.)
Carex Tolmiei var. *subsessilis* L. H. Bailey, Mem. Torrey Club **1**: 47. 1889. (As to Oregon plants.)
Carex brachypoda Holm, Am. Journ. Sci. IV. **20**: 302; 307. *f. 4–6.* 1905. (Type from Crater Lake National Park, Oregon.)
Carex rigida var. *hesperia* Piper, Contr, U. S. Nat. Herb. **11**: 173. 1906. (Based on *C. rigida* var. *bracteosa* L. H. Bailey.)
"*Carex rigida* Good." Smiley, Univ. Calif. Publ. Bot. **9**: 120. 1921.

Strongly stoloniferous, the stolons stout, ascending or horizontal, clothed with somewhat shining, purplish-brown scales, the culms in small clumps or single, stiffly erect, 2–6 dm. high, papillate, strongly exceeding leaves, sharply triangular, from very rough above to smooth, phyllopodic, brownish or dull-purplish-brown-tinged at base, the dried-up leaves of the previous year inconspicuous and short, the lower leaves of the year reduced to bladeless or short-bladed sheaths; sterile shoots phyllopodic; leaves of the year with well-developed blades 3–6 to a fertile culm, clustered on lower fourth, septate-nodulose, the blades strictly erect, light-green, thick, usually 1.5–2.5 dm. long, 2.5–5 mm. wide, flat with revolute margins, tapering and sharp-tipped, rough towards apex, the sheaths very thin and hyaline ventrally, slightly yellowish-brown-tinged, short-hispidulous dorsally, the ligule as long as wide; staminate spike solitary, sessile or more or less peduncled, linear-clavate, 1–3 cm. long, 2.5–4 mm. wide, the scales oblong-obovate, obtuse or acutish, black, usually slightly hyaline at apex, the midvein whitish, often nearly obsolete; pistillate spikes 1–3, contiguous or somewhat separate, erect, sessile to short-peduncled, oblong to cylindric, often staminate at apex, 5–25 mm. long, 4–6 mm. wide, closely flowered, the 8–50 perigynia ascending or spreading, in several to many rows; lowest bract black-auricled, not sheathing, squamiform, much shorter than the culm, the others much reduced, strongly black-auricled; scales ovate, obtuse or acute, black with white (often nearly obsolete) midvein and slightly hyaline margins, noticeably narrower than and from shorter than to exceeding perigynia; perigynia flattened bi-convex or plano-convex, not inflated, broadly obovate to suborbicular, 2.25–3.5 mm. long, 1.5–2 mm. wide, 2-ribbed (the marginal), otherwise nerveless, granular, membranaceous, pale at base, purplish-black at apex, not or very sparingly remotely serrulate above, round-tapering and slightly stipitate at base, rounded at apex, abruptly apiculate, the beak very short, 0.1–0.25 mm. long, entire, purplish-black; achenes lenticular, broadly obovate, 1.5–1.75 mm. long, 1.25 mm. wide, nearly filling lower two thirds of perigynium, brownish, substipitate, abruptly apiculate, jointed with the very short, not exserted, slender style; stigmas 2, slender, yellowish-brown.

TYPE LOCALITY: Bogs of Hurricane Creek, Oregon (*Cusick 2487*).
DISTRIBUTION: In wet meadows, in the higher mountains from Washington south to Tulare

* Exc. ref. to *Carex Tolmiei* var. *angusta* Bailey.

county, California, and eastward to Colorado. (Specimens examined from Washington, Oregon, Idaho, Colorado, California.)

ILLUSTRATIONS: Am. Jour. Sci. IV. 14: 425, *f. 12–14;* 20: 307. *f. 4–6* (*Carex brachypoda* Holm); Erythea 8: 73. *f. 40;* Abrams, Ill. Fl. Pacif. St. *f. 810;* Jepson, Man. Fl. Pl. Calif. *f. 198.*

443. **Carex accedens** Holm, Am. Jour. Sci. IV. 16: 457. 1903.

Carex stylosa var. *virens* L. H. Bailey, Proc. Am. Acad. 22: 79. 1886. (Type is taken as from Mt. Adams, Washington.)

Carex spreta L. H. Bailey, Mem. Torrey Club 1: 6. 1889. (Based on *C. stylosa* var. *virens* L. H. Bailey.) Not *C. spreta* Steud. 1855.

Strongly stoloniferous, the rootstocks stoutish, horizontal or ascending, scaly, purplish-brown, the culms 2.5–4 dm. high, stiff, stoutish, very sharply triangular, strongly roughened above, papillate, exceeding the leaves, phyllopodic, purplish-brown-tinged at base, the dried-up leaves of the previous year not very conspicuous, the lower leaves of the year all blade-bearing; leaves of the year with well-developed blades 4–5 to a fertile culm, on the lower fourth, erect, flat with revolute margins, elongate, not rigid, light-green, papillose, short-tapering, 1–2.5 dm. long, 3–4 mm. wide, the sheaths, at least the lower, hispidulous and purplish-brown-tinged dorsally, white-hyaline ventrally, the ligule longer than wide; terminal spike staminate, or rarely gynaecandrous, sessile or nearly so, 1.5–2 cm. long, 5–6 mm. wide, the scales oblong-obovate, obtuse, purplish-black, with white midvein not extending to apex and minutely hyaline apex; pistillate spikes 2–4, closely aggregated or the lowest more or less distant, sessile or the lower one or two peduncled, oblong, 0.7–2 cm. long, 6–8 mm. wide, densely flowered, with 20–40 spreading-ascending perigynia in several to many rows; bracts not sheathing, the lowest leaflet-like, dark-auricled, 8 cm. long or less, much shorter than culm, the others much reduced; scales ovate or lanceolate-ovate, purplish-black with white midvein usually not extending to apex, not hyaline-margined, obtuse or acutish, much narrower and much shorter than perigynia; perigynia broadly obovoid or suborbicular, flattened, biconvex, scarcely inflated, 3 mm. long, 1.75–2.25 mm. wide, 2-ribbed (the marginal), otherwise nerveless, granular, subcoriaceous, resinous-dotted towards apex, olive-green, often purplish-dotted above, not serrulate, sessile, abruptly apiculate with a very minute, entire, dark-colored, straight beak 0.1–0.2 mm. long; achenes lenticular, oblong-obovoid, 2 mm. long, 1.25 mm. wide, nearly filling lower two thirds of perigynium, brownish, substipitate, abruptly apiculate, jointed with the slender, short-exserted style; stigmas 2, slender, whitish or in age yellowish-brown.

TYPE LOCALITY (of *C. stylosa* var. *virens* L. H. Bailey, on which *C. accedens* is based): "Sauvies Island, Oregon, and Mt. Adams, Washington territory, at 5000 feet, Howell."

DISTRIBUTION: Rare and local, Mt. Adams and Mt. Rainier, Washington. (Specimens examined from both localities.) While Howell reports this mountain species from Sauvies Island, Oregon, and says it forms "part of the sedge pasturage of the Columbia," it is to be surmised that he confused it with *Carex aperta* Boott, and that his labeling represents some mistake.

ILLUSTRATION: Abrams, Ill. Fl. Pacific St. *f. 809.*

444. **Carex campylocarpa** Holm, Am. Jour. Sci. IV. 20: 304; 307. *f. 13–15.* 1905.

Loosely cespitose, the rootstocks slender, ascending, elongate, sending forth slender horizontal stolons, the culms 3–6 dm. high, slender, erect, sharply triangular and very rough on the angles above, papillate, exceeding the leaves, phyllopodic, strongly purplish-tinged and fibrillose at base, the dried-up leaves of the previous year few, rather inconspicuous, the lower leaves of the year reduced to bladeless sheaths; sterile shoots aphyllopodic; leaves with well-developed blades about 4 to a fertile culm, obscurely septate-nodulose, the blades erect, widest above, light-green, papillate, thinnish, flat with revolute margins, 1.5–3.5 mm. (averaging 2.5–3 mm.) wide, very sharp-tipped, short-tapering, the margins rough above, the sheaths slightly hispidulous dorsally, very thin, olive-tinged, and red-dotted ventrally, concave at mouth, not filamentose, the ligule longer than wide; staminate spike solitary, subsessile or short-peduncled, oblong-clavate, 6–20 mm. long, 3–5 mm. wide, the scales oblong-obovate,

obtuse or acute, black with obsolete or slender, white midvein; pistillate spikes 2 or 3, the upper contiguous and sessile or nearly so, the lower separate, erect and short-peduncled, or sometimes strongly peduncled and drooping, short-oblong to linear-oblong, 5–20 mm. long, 4.5–6 mm. wide, closely 10–30-flowered in several rows, the perigynia ascending or excurved-spreading; lowest bract leaflet-like, shorter than inflorescence, sheathless, purplish-black at base, the upper much reduced, black-auricled; scales ovate, obtuse, black, sometimes with minutely hyaline apex, the slender midvein nearly or entirely obsolete, narrower than and from half to nearly as long as the perigynia; perigynia ovate or elliptic, 3–3.75 mm. long, 1.5–1.75 mm. wide, flattened biconvex, often with convex outer face and concave inner face, becoming very slightly turgid, membranaceous, 2-ribbed (the marginal), otherwise nerveless, dull-green below, purplish or purplish-mottled above, granular, very sparingly remotely serrulate above when young, rounded and substipitate at base, tapering above, abruptly short-apiculate-beaked, the beak 0.2 mm. long, black, entire; achenes lenticular, obovate, 1.5–1.75 mm. long, 1 mm. wide, in lower half of and narrower than perigynium, yellowish-brown, short-stipitate, apiculate, jointed with the slender, not exserted style; stigmas 2, slender, yellowish-brown.

TYPE LOCALITY: Cathedral Spring, Crater Lake National Park, Oregon (*Coville 1457*).
DISTRIBUTION: Alpine meadows and stream-banks, Cascade Mountains, Oregon and Washington. (Specimens examined from Oregon, Washington.)
ILLUSTRATIONS: Am. Jour. Sci. IV. **20**: 307. *f. 13–15;* Abrams, Ill. Fl. Pacif. St. *f. 811.*

445. **Carex prionophylla** Holm, Am. Jour. Sci. IV. **14**: 423. 1902.

Stoloniferous, the stolons stout, ascending, clothed with the somewhat shining purplish scales, the culms in small clumps or single, 5–15 dm. high, erect or decumbent, slender above, exceeding the leaves, papillate, very sharply triangular, narrowly wing-angled and very serrulate on the angles, strongly reddish-purple at base, apparently strongly aphyllopodic, arising from among the few much dried-up and inconspicuous leaves of the previous year, the lower leaves of the flowering year very conspicuously reduced to bladeless sheaths; sterile shoots strongly aphyllopodic; leaves of the year with well-developed blades 3–5 to a fertile culm, clustered well above the base, sparingly septate-nodulose, the blades dull-bluish-green, thick, papillate, flat, with slightly revolute margins, very long (often 6 dm.), 4–5 mm. wide, very scabrous, short-acute, the lower bladeless, the sheaths very long and conspicuous, rounded and strongly hispidulous dorsally, yellowish-brown-tinged, strongly purplish-red-dotted, and very fragile ventrally, the ligule as long as or longer than wide; staminate spike solitary, short-peduncled, 18–25 mm. long, 3–4.5 mm. wide, the scales oblong-obovate, obtuse or acutish, black with lighter slender midrib and scarcely hyaline margins; pistillate spikes 3 or 4, erect, sessile, or the lowermost slightly peduncled, approximate, or the lowest more or less strongly separate, oblong- or linear-cylindric, 1–2 cm. long, 3–4 mm. wide, closely flowered with 15–40 appressed perigynia in several rows; lowest bract leaflet-like, exceeded by inflorescence, sheathless but dark-auricled, the others reduced to dark auricles; scales oblong-ovate, acutish or obtusish, half as wide as and shorter than to nearly as long as the perigynia, black throughout or with lighter midrib; perigynia obovate or oblong-obovate, plano-convex, not turgid, much flattened, 2.5 mm. long, 1.5 mm. wide, 2-ribbed (the marginal), otherwise nerveless or very obscurely few-nerved dorsally, green, granular, membranaceous, round-tapering and substipitate at base, abruptly rounded and minutely beaked at apex, the beak 0.25 mm. long, purplish-black, entire; achenes lenticular, obovoid, 1.5 mm. long, 1 mm. wide, nearly filling lower two thirds of perigynium, nearly sessile, apiculate, jointed with the short slender style; stigmas 2, slender.

TYPE LOCALITY: Northern Idaho. Region of the Coeur d'Alene Mountains, near mountain streams; divide between St. Joe and Clearwater River.
DISTRIBUTION: Springy and swampy places along mountain streams, northern Idaho and northeastern Washington. An excellent species. (Specimens examined from both localities.)
ILLUSTRATIONS: Am. Jour. Sci. IV. **14**: 425. *f. 7–11*; Abrams, Ill. Fl. Pacif. St. *f. 812.*

446. **Carex miserabilis** Mackenzie sp. nov.

Strongly stoloniferous, the stolons stout, ascending, clothed with the somewhat shining purplish scales, the culms in small clumps or single, erect, stiff, 2.5–6 dm. high, papillate, exceeding leaves, sharply triangular, strongly roughened above, purplish-tinged at base, arising from among the few, much dried-up and inconspicuous leaves of the previous year, the lower leaves of the year reduced to bladeless sheaths; sterile shoots strongly aphyllopodic; leaves of the year with well-developed blades 2 or 3 to a fertile culm, somewhat septate-nodulose, widely separate on lower half, the blades erect, light-green, thick, papillate, flat with revolute margins, mostly 1.5–3.5 dm. long, 3.5–5 mm. wide, tapering and sharp-tipped, roughened towards the apex, the sheaths hispidulous dorsally and white-hyaline, yellowish-tinged and red-dotted, and very fragile ventrally, the ligule as long as wide; staminate spike solitary, short-peduncled or nearly sessile, narrowly obovoid-oblong, 1–1.5 cm. long, 4.5 mm. wide, the scales oblong-obovate, obtuse, black with more or less hyaline margins, the midvein slender, mostly obsolete; lateral spikes 2 or 3, short-peduncled or sessile, closely approximate or the lower somewhat separate, pistillate or staminate at apex, broadly to narrowly oblong, 0.75–3 cm. long, 6–8 mm. wide, closely flowered, the perigynia 10–40, ascending in several to many rows; lowest bract black-biauriculate at base, broad, 2.5–3 mm. wide, shorter than the culm, the upper much reduced, strongly black-biauriculate; scales oblong-ovate to lanceolate, obtuse or acutish, black, the midvein slender, usually obsolete, slightly narrower than but mostly exceeding perigynia; perigynia plano-convex or slightly biconvex, obovate, 2.5–3 mm. long, 1.5 mm. wide, 2-ribbed (the marginal), otherwise nerveless, granular, membranaceous, not turgid, usually straw-colored at base and purplish-black-tinged above or throughout, rounded and substipitate at base, rounded at apex, abruptly minutely beaked, the beak purplish-black, 0.1–0.3 mm. long, entire; achenes lenticular, obovoid, 1.5 mm. long, 1 mm. wide, nearly filling lower two thirds of perigynium, brownish, sessile, abruptly apiculate, jointed with the very short, not exserted style; stigmas 2, slender, yellowish-white or in age yellowish-brown.

Valde stolonifera; culmi triangulares 2.5–6 dm. alti rigidi, inter folia defoliata anni praecedentis orientes; vaginae inferiores hispidulae non foliatae; folia pallida 1.5–3.5 dm. longa culmis breviora; spica mascula solitaria obovoideo-oblonga, squamis oblongo-obovatis obtusis; spicae laterales 2 vel 3 breviter pedunculatae vel sessiles, femineae vel apice masculae, oblongae; perigynia plano-convexa obovata 2.5–3 mm. longa 2-costata apice in rostrum minutum rotundata, squamis oblongo-ovatis vel lanceolatis perigynia saepe superantibus, costa obsoleta; achaenia lenticularia obovoidea.

TYPE collected at Chiwaukum Lake, Chelan County, Washington (*Eggleston 13567*).
DISTRIBUTION: Swampy meadows and wet grounds, mountains of eastern Oregon, Washington, and northern Idaho. (Specimens examined from eastern Oregon, Washington, Idaho.)

447. **Carex lenticularis** Michx. Fl. Bor. Am. 2: 172. 1803.

Carex lenticularis var. *albi-montana* Dewey, Am. Jour. Sci. II. 29: 348. 1860. (Type from White Mountains, New Hampshire.)
Carex lenticularis var. *Blakei* Dewey, in Wood, Class-Book, ed. 1861. 755. 1861. (Type from Harrison, Maine.)
Carex lenticularis var. *merens* Howe, Ann. Rep. N. Y. State Mus. 48: 149. 1897. (Type from Adirondack Mountains, New York.)
Carex lenticularis var. *eucycla* Fernald & Wieg. Rhodora 15: 134. 1913. (Type from Newfoundland.)

Densely cespitose, forming large clumps, the rootstock very short, the culms 1–6 dm. high, erect, slender, sharply triangular above, smooth or somewhat roughened above, papillose, usually shorter than but sometimes exceeding the leaves, phyllopodic, brownish at base, the dried-up leaves of the previous year not very conspicuous; sterile shoots phyllopodic; leaves with well-developed blades 4–9 to a fertile culm, clustered on the lower third, the blades erect, thin, light-green, flat above, plicate at base, long-attenuate, 0.5–4 dm. long, 1–2 mm. wide, roughened towards the apex, the sheaths very obscurely or not at all septate dorsally, not hispidulous, thin-white-hyaline and yellowish-brown-dotted ventrally, concave at mouth

(often deeply so), the ligule longer than wide; staminate spike solitary, sometimes with a few perigynia, from little to strongly peduncled, linear, 8–30 mm. long, 2.5 mm. wide, the scales oblong-obovate, very obtuse, with broad 3-nerved green center and narrow hyaline margins and an intermediate reddish-brown or dark-purplish zone; pistillate spikes 3–5, erect, the upper sessile, the lower short- (rarely long-) peduncled, the lower from little to strongly separate, the upper contiguous, typically elongate-linear and 1.5–4.5 cm. long, 3–4 mm. wide, closely flowered above, often attenuate towards base, the perigynia numerous, ascending, in few rows; lowest bract leaf-like, erect, short-sheathing, strongly exceeding inflorescence, the upper ones smaller, biauriculate; scales suborbicular-ovate to oblong-ovate, small, very obtuse, narrower and usually noticeably shorter than perigynia, sometimes about equaling them, dark-purplish or brownish-red-tinged with broad 3-nerved green center not extending to the apex, and wide or narrow hyaline margins especially at the apex; perigynia soon deciduous, obovate, varying to orbicular-obovate or oblong-obovate, flattish, biconvex and 2-edged, 1.8–3 mm. long, 1–1.5 mm. wide, glaucous-green, slightly yellow-glandular-dotted, membranaceous, lightly few-ribbed on both sides, minutely papillate, round-tapering or rounded-truncate and slenderly short-stipitate at base, tapering or rounded at apex, and abruptly apiculate, the beak slender, 0.25 mm. long, with entire, rarely dark-tipped orifice; achenes lenticular, oblong-quadrangular, 1.75 mm. long, 1 mm. wide, filling lower three quarters of perigynium, brownish, papillate, sessile, abruptly short-apiculate, jointed with the very short, slender style; stigmas 2, reddish-brown, slender, short.

Type locality: "Hab. per tractus montium, a sinu Hudsonis ad Canadam, praesertim ad lacum Cycnorum dictum."

Distribution: River and lake shores, in calcareous districts, Labrador and Newfoundland to Mackenzie, and southward to Massachusetts, Minnesota, Saskatchewan, and Idaho. (Specimens examined from Labrador, Newfoundland, Nova Scotia, New Brunswick, Quebec, Maine, New Hampshire, Vermont, Massachusetts, New York, Ontario, Michigan, Minnesota, Manitoba, Saskatchewan, Idaho, Keewatin, Mackenzie.)

Illustrations: Britt. & Brown, Ill. Fl. *f. 723;* ed. 2. *f. 1053;* Rob. & Fern. Man. *f. 421;* Engler, Pflanzenreich 4^{20}: 308. *f. 47;* Boott, Ill. Carex 30. *pl. 77.*

Note: See Fernald's treatment of these varieties.

448. **Carex paucicostata** Mackenzie, Erythea **8**: 74. 1922.

"*Carex lenticularis* Michx." W. Boott, in S. Wats. Bot. Calif. **2**: 242, in part. 1880.
Carex interrupta var. *impressa* L. H. Bailey, Mem. Torrey Club **1**: 18. 1889. (Type from Sierra Nevada, California.)

Densely cespitose, forming large or medium-sized clumps, the rootstocks very short, tough, the new shoots very short-ascending, at the base of the old, long horizontal stolons absent, the culms 2.5–5 dm. high, slender, strict, sharply triangular, smooth or slightly roughened above, papillose, shorter than or exceeding the leaves, phyllopodic, brownish and somewhat fibrillose at base, the dried-up leaves of the previous year conspicuous; leaves with well-developed blades 5–10 to a fertile culm, clustered on lower fourth, the blades erect, thin, usually 1.5–2.5 dm. long, 2–4 mm. wide, flat above, more or less channeled towards base, light-green, long-attenuate, roughened towards the apex, obscurely septate-nodulose towards base, the sheaths rounded and not hispidulous dorsally, light-yellowish-brown or whitish-hyaline ventrally, concave at mouth, the ligule longer than wide; staminate spike solitary, rarely with a few perigynia, short-peduncled or nearly sessile, linear, 2–3 cm. long, 2.5–4 mm. wide, the scales oblong-obovate, very obtuse, dark-reddish-brown with broad whitish center and hyaline apex; pistillate spikes 4–6, more or less strongly separate or the upper approximate, erect, linear, 1–4 cm. (typically 2–3 cm.) long, 3.5–5 mm. wide, erect, the lower short-peduncled, the upper sessile or nearly so, closely flowered or somewhat loosely at base, with numerous appressed-ascending perigynia in several rows; lowest bract leaf-like, sheathless, exceeding culm, the others reduced, dark-biauriculate; scales oblong or oblong-lanceolate, obtuse or acutish, blackish, with narrow whitish center not extending to tip and minutely hyaline apex, usually a little shorter than and about half width of perigynia, falling early but after perigynia; perigynia suborbicular or very broadly obovate or very broadly ovate, strongly flattened, biconvex, 2 mm. long, 1.5–2 mm. wide, glaucous-green, granular and resinous,

membranaceous, 2-ribbed (the marginal) and coarsely 3–5-nerved ventrally and 7–9-nerved dorsally, rounded and slenderly short-stipitate at base, rounded and abruptly minutely apiculate at apex, the upper part not conspicuously empty, the beak 0.1–0.25 mm. long, subentire, black-tipped; achenes lenticular, blackish, suborbicular, 1.5 mm. long and nearly as wide, filling more than three fourths of perigynium, sessile, abruptly apiculate, jointed with the straight, short, slender style; stigmas 2, slender, dark-colored.

TYPE LOCALITY (of *C. interrupta* var. *impressa* L. H. Bailey, on which *C. paucicostata* is based): "Summit Camp, California, *Kellogg*, Yosemite Valley, *Bolander 6198*."

DISTRIBUTION: Wet places, mostly around lakes, in the Sierra Nevada of California, known from Tulare County to El Dorado county. (Specimens examined showing range as given.)

ILLUSTRATION: Abrams, Ill. Fl. Pacif. St. *f. 814*.

449. **Carex Kelloggii** W. Boott, in S. Wats. Bot. Calif. 2: 240. 1880.

Carex acuta var. *pallida* Boott, Ill. Carex 166. *pl. 554*. 1867. (Type from Oregon.)
"*Carex vulgaris* var. *juncella* Fries" Olney, in S. Wats. Bot. King's Expl. 368, in part. 1871.
"*Carex caespitosa* L." Olney; A. Gray, Proc. Am. Acad. 8: 407. 1872.
"*Carex decidua* Boott" W. Boott, in S. Wats. Bot. Calif. 2: 240. 1880.
"*Carex aquatilis* Wahl." Kurtz, Bot. Jahrb. 19: 417. 1894.
Carex vulgaris var. *lipocarpa* Holm, Am. Jour. Sci. IV. 17: 308, in part. 1904. (Type not definitely designated.)
Carex limnaea Holm, Am. Jour. Sci. IV. 20: 301, 307. *f. 1–3*. 1905. (Type from Crater Lake, Oregon.)
Carex Hindsii var. *brevigluma* Kükenth. in Engler, Pflanzenreich 4[20]: 307. 1909. (Type from Lake Pend d'Oreille, Idaho.)
Carex lenticularis var. *paullifructus* Kükenth. in Engler, Pflanzenreich 4[20]: 308. 1909. (Type from Palouse Creek, Washington.)
Carex Goodenovii var. *lipocarpa* M. E. Jones, in Bull. Univ. Mont. 61: 172, in part. 1910. (Based on *C. vulgaris* var. *lipocarpa* Holm.)

Cespitose, forming medium-sized or large clumps, the rootstocks short or more or less elongate, slender but tough, the culms 1–6 dm. high, erect, slender, sharply triangular above, more or less roughened above, papillose, usually shorter than but sometimes exceeding the leaves, phyllopodic, brownish and somewhat fibrillose at base, the dried-up leaves of the previous year conspicuous; sterile shoots aphyllopodic; leaves with well-developed blades 5–10 to a fertile culm, on the lower third, more or less clustered, the blades erect, thin, light-green, flat above, channeled towards base, usually 1–3 dm. long, 1.5–2.5 mm. wide, long-attenuate, much roughened at the apex, the sheaths very obscurely or not at all septate, rounded and not hispidulous dorsally, thin-white-hyaline and yellowish-brown-dotted ventrally, concave at mouth (often deeply so), the ligule longer than wide; terminal spike staminate, rarely somewhat pistillate, more or less strongly peduncled, 1–4 cm. long, 3–4 mm. wide, the scales oblong-obovate, obtuse, purplish-brown with conspicuous lighter center and hyaline margins; pistillate spikes 3–5, approximate or slightly separate, erect, the lower short-peduncled, the upper sessile or nearly so, linear-cylindric, from not at all to noticeably attenuate at base, generally 1.5–3.5 cm. long, about 4.5 mm. wide, containing numerous appressed-ascending perigynia in few to several rows; lowest bract leaf-like, strongly exceeding inflorescence, sheathless or nearly so, the upper reduced, biauriculate; scales oblong-ovate, obtuse or slightly acutish, dark-purplish-brown with broad, lighter, usually 1-nerved center not extending to the apex, and narrow hyaline margins, narrower than and from much shorter than to about the length of the perigynia; perigynia soon deciduous, ovate, flattened biconvex, 2-edged, 1.5–3 mm. long, 1.25 mm. wide, light-green, not at all dark-colored, granular, not or rarely yellow-glandular, membranaceous, 2-ribbed (the marginal), lightly several-nerved on both sides, round-truncate at base and slenderly stipitate, rounded at apex, abruptly apiculate-beaked, the beak 0.1–0.25 mm. long, entire, usually conspicuously black-tipped; achenes lenticular, suborbicular, about 1 mm. long, filling lower half of perigynium, blackish, granular, substipitate, abruptly short-apiculate, jointed with the short slender style; stigmas 2, slender, dark-colored.

TYPE LOCALITY: Sierra Nevada Mountains of California (*Kellogg; Lemmon*).

DISTRIBUTION: Sunny swamps and wet meadows, Alberta to Colorado, and westward to Alaska and California (where confined to the higher Sierras). (Specimens examined from Alberta, Montana, Wyoming, Colorado, Utah, Idaho, Alaska, British Columbia, including Vancouver Island, Washington, Oregon, California.)

ILLUSTRATIONS: Am. Jour. Sci. IV. 20: 307. *f. 1–3;* Boott, Ill. Carex 166. *pl. 554;* Abrams, Ill. Fl. Pacif. St. *f. 816*.

450. Carex Hindsii C. B. Clarke, Kew Bull. Add. Ser. 8: 70 (excluding Montana specimen). 1908.

Carex decidua Boott, Ill. Carex 163. 1858. (As to North American plant, not as to type.)
"*Carex vulgaris* Fries" Holm, Am. Jour. Sci. IV. **10**: 269. 1900.
"*Carex interrupta* Böck." Holm, Am. Jour. Sci. IV. **10**: 269. 1900.
Carex vulgaris var. *limnophila* Holm, Am. Jour. Sci. IV. **17**: 307. 1904. (Type from St. Paul Island, Bering Sea.)
Carex vulgaris var. *lipocarpa* Holm, Am. Jour. Sci. IV. **17**: 308. 1904. (Type not definitely designated.)
Carex Goodenovii var. *limnophila* M. E. Jones, Bull. Univ. Mont. 61: 72. 1910. (Based on *C. vulgaris* var. *limnophila* Holm.)
Carex Goodenovii var. *lipocarpa* M. E. Jones, Bull. Univ. Mont. 61: 72, in part. 1910. (Based on *C. vulgaris* var. *lipocarpa* Holm.)

Cespitose, forming medium-sized or large clumps, the rootstocks short to long, stout, tough, branching, creeping and descending, often fibrillose, the culms 1–5 dm. high, slender but strict, sharply triangular, papillose, smooth or slightly roughened above, shorter than or often exceeded by the leaves, phyllopodic, brown or purplish-brown at base, the dried-up leaves of the previous year conspicuous; sterile shoots aphyllopodic; leaves with well-developed blades 5–10 to a fertile culm, clustered on lower third, the blades erect, thin, firm, light-green, flat above, channeled towards base, usually 1.5–3 dm. long, 1.5–3 mm. wide, long-attenuate, much roughened towards the apex, the sheaths obscurely or not at all septate-nodulose dorsally, not hispidulous, thin-white-hyaline and yellowish-brown-dotted ventrally, concave at mouth (often deeply so), the ligule as wide as long; staminate spike solitary, short-peduncled or nearly sessile, linear, 1.5–3.5 cm. long, 2.5–4.5 mm. wide, the scales oblong-obovate, very obtuse, purplish-black with broad lighter center and white-hyaline margins; pistillate spikes 3–6, more or less strongly separate or the upper approximate, linear, 1–4.5 cm. (typically 2–3.5 cm.) long, 5–7 mm. wide, erect, the lower short-peduncled, the upper sessile or nearly so, densely flowered, with numerous appressed-ascending perigynia in several to many rows; lowest bract leaf-like, strongly exceeding inflorescence, sheathless or nearly so, the upper reduced, biauriculate; scales oblong-oblanceolate or oblong-lanceolate, obtuse or acutish, purplish-black with narrow or broad lighter center not extending to the apex, hyaline apex and upper margins, much shorter than and about half the width of perigynia, early deciduous; perigynia early deciduous, ovate, strongly flattened, unequally biconvex, 2-edged, 2–3.5 mm. long, 1.5–2 mm. wide, membranaceous, slenderly about 5-ribbed on both sides, yellowish-green, papillate, rounded or truncate and strongly (0.5–1 mm.) slenderly stipitate at base, tapering or contracted into an apiculate, subentire, usually black-tipped beak, the beak 0.1–0.25 mm. long; achenes lenticular, suborbicular, 1.5 mm. long and about as wide, filling lower two thirds of perigynium, brownish-black, granular, substipitate, abruptly short-apiculate, jointed with the short slender style; stigmas 2, reddish-brown, slender.

TYPE LOCALITY: Columbia River (*Hinds*).
DISTRIBUTION: Wet meadows along the coast, from northwestern California to the Aleutian and Commander Islands; abundant on the Alaskan coast. (Specimens examined from northwestern California, Oregon, Washington, British Columbia, including Vancouver Island, Alaska.)
ILLUSTRATIONS: Bot. Gaz. **10**: *pl. 3, f. 1–5* (as *C. decidua*); Abrams, Ill. Fl. Pacif. St. *f. 815*.

451. Carex acuta L. Sp. Pl. 978. 1753.

Carex nigra verna vulgaris L. Fl. Lapp. 257. 1737.
Carex spicis masculis pluribus β Carex nigra verna vulgaris L. Fl. Suec. 280. 1745.
Carex acuta var. *nigra* L. Sp. Pl. 978. 1753. (The type variety.)
Carex diversicolor Crantz, Inst. **1**: 405. 1766. (Based on *C. acuta* L.)
Carex nigra Reichard, Fl. Moeno-Franc. **2**: 96. 1778. (Based on *C. acuta* var. *nigra* L.) Not *C. nigra* All. 1785.
Carex fusca All. Fl. Pedem. **2**: 269. 1785. (Type from Switzerland; as to identity sees Gaudin, Agrost. Helv. **2**: 190–191.)
Carex alpina Honck. Syn. **1**: 374. 1792. (Type from Germany.) Not *C. alpina* Schrank, 1789.
"*Carex caespitosa* L." Gooden. Trans. Linn. Soc. **2**: 195. *pl. 21, f. 8*. 1794. (Plant from Great Britain.)
Carex ambigua Moench, Meth. 325. 1794. (Type from west central Germany.) Not *C. ambigua* Link, 1799.
Carex polyandra Schkuhr, Riedgr. 59. *pl. Dd, f. 90*. 1801. (Type from Germany.)
Carex aquatilis var. *C. nardifolia* Wahl. Sv. Vet.-Akad. Nya Handl. **24**: 165, in part. 1803.

Carex acuta (var.) Sw. Sv. Bot. *pl. 408 (f. B)*. 1808. (Plant from Sweden.)
"*Carex saxatilis* L." Schultes, Oesterr. Fl. ed. 2. **1**: 146. 1814. (Plant from Austria.)
Carex Mönchiana Wender. Schr. Nat. Ges. Marburg **1**: 130. 1823. (Based on *C. ambigua* Moench.)
Carex angustifolia Smith, Engl. Fl. **4**: 127. 1828. (Type from Angusshire, Scotland.)
Carex caespitosa var. *curvata* Fleischer, Riedgr. Würtemb. 15. 1832. (Type from Würtemberg.)
Carex caespitosa var. *recta* Fleischer, Riedgr. Würtemb. 15. 1832. (Type from Würtemberg.)
Carex stolonifera Hoppe, in Sturm, Deuts. Fl. **69**: *pl. 6*. 1835. (Type from the Alps.) Not *C. stolonifera* Ehrh. 1791.
Carex caespitosa var. *alpina* Gaudin, Syn. Fl. Helv. 782. 1836. (Type from Switzerland.)
Carex Goodenowii Gay, Ann. Sci. Nat. II. **11**: 191. 1839. (Based on "*C. caespitosa* L." Gooden.)
Carex caespitosa var. *polymorpha* Laest. Nova Acta Soc. Sci. Upsal. **11**: 284. 1839. (Type from Lapland.)
Osculisa acuta Raf. Good Book 27. 1840. (Based on *Carex acuta* L.)
Vignea caespitosa var. *polygama* Peterm. Fl. Bienitz 16. 1841. (Type from Germany.)
Carex vulgaris Fries, Mant. 153. 1842. (Type from Lapland.)
Carex vulgaris var. *tornata* Fries, Mant. 154. 1842. (Type from Scandinavia.)
Carex vulgaris var. *juncea* Fries, Mant. 154. 1842. (Type from Scandinavia.)
Carex Gibsoni Bab. Ann. Mag. Nat. Hist. **11**: 168. *pl. 5*. 1843. (Type from Yorkshire, England.)
Carex turfosa Fries, Bot. Notiser **1843**: 104. 1843. (Type from Sweden.)
Carex vulgaris subsp. *juncella* Fries, Bot. Notiser **1843**: 105. 1843. (Type from Scandinavia.)
Carex Goodenovii var. *polygama* Peterm. Flora **27**: 334. 1844. (Based on *Vignea caespitosa* var. *polygama* Peterm.)
Carex intricata Tineo; Guss. Fl. Sic. Syn. **2**: 574. 1844. (Type from Sicily.)
Carex vulgaris var. *zonata* F. Nyl. Spic. Pl. Fenn. **2**: 19. 1844. (Type from Finland.)
Carex vulgaris var. *androgyna* Peterm. Anal. Pfl. 500. 1846. (Type from Germany.)
Carex vulgaris var. *tenuis* Peterm. Anal. Pfl. 500. 1846. (Type from Germany.)
Carex vulgaris var. *ramosa* Peterm. Anal. Pfl. 500. 1846. (Type from Germany.)
Carex vulgaris var. *atra* Peterm. Anal. Pfl. 500. 1846. (Type from Germany.)
Carex vulgaris var. *polygama* Peterm. Anal. Pfl. 500. 1846. (Based, by inference, on *Vignea caespitosa* var. *polygama* Peterm.)
Carex vulgaris var. *chlorostachya* Reichenb. Ic. Fl. Germ. **8**: 13. *pl. 226, f. 579*. 1846. (Type from central Europe.)
Carex vulgaris f. *polygama* Reichenb. Ic. Fl. Germ. **8**: 13. *pl. 227, f. 580b*. 1846. (Type from central Europe.)
Carex vulgaris f. *basigyna* Reichenb. Ic. Fl. Germ. **8**: 13. *pl. 227, f. 580c*. 1846. (Type from central Europe.)
Carex acuta var. *minor* Neilr. Fl. Wien. 71. 1846. (Based on *C. acuta* var. *nigra* L.)
Carex vulgaris var. *humilior* Maly, Enum. 34. 1848. (Based on *C. stolonifera* Hoppe.)
Carex vulgaris var. *Bructeri* G. Meyer, Fl. Hanov. Exc. 598. 1849. (Type from Hanover, Germany.
Carex melaena Wimmer, Uebers. Arb. Schles. Ges. **1849**: 79? 1850. (Type from Ohlau, Germany.)
Carex chlorocarpa Wimmer, Uebers. Arb. Schles. Ges. **1849**: 79? 1850. (Type from Breslau, Germany.)
Carex vulgaris var. *elatior* O. F. Lang, Linnaea **24**: 556. 1851. (Type European, but not definitely designated.)
Carex vulgaris var. *juncella* Hartm. Skand. Fl. ed. 6. 297. 1854. (Based, by inference, on *C. vulgaris* subsp. *juncella* Fries.)
Carex caespitosa var. *fuliginosa* Döll, Fl. Bad. 260. 1856. (Type from Germany.)
Carex vulgaris var. *fuliginosa* A. Br.; Döll, Fl. Bad. 261. 1856. (Type from Germany.)
Carex juncella Th. Fries, Bot. Notiser **1857**: 207. 1857. (Based on *C. vulgaris* subsp. *juncella* Fries.)
Carex vulgaris var. *longepedunculata* Blytt, Norges Fl. 213. 1861. (Type from Norway.)
Carex vulgaris var. *rigida* Blytt, Norges Fl. 213. 1861. (Type from Norway.)
Carex vulgaris var. *atra* Blytt, Norges Fl. 213. 1861. (Type from Norway.)
Carex vulgaris var. *anomala* Blytt, Norges Fl. 213. 1861. (Type from Norway.)
Carex intermedia Miégev. Bull. Soc. Bot. Fr. **10**: 93. 1863. (Type from France.) Not *C. intermedia* Gooden. 1794.
Carex Goodenoughii Asch. Fl. Brand. **1**: 776. 1864. (Change of spelling for *C. Goodenowii* Gay.)
Carex Goodenoughii var. *tornata* "Fries" Asch. Fl. Brand. **1**: 777. 1864. (Based, by inference, on *C. vulgaris* var. *tornata* Fries.)
Carex Goodenoughii var. *juncella* "Fries" Asch. Fl. Brand. **1**: 777. 1864. (Based, by inference, on *C. vulgaris* subsp. *juncella* Fries.)
Carex Goodenoughii var. *juncella* f. *chlorostachya* "Reichenb." Asch. Fl. Brand. **1**: 777. 1864. (Based, by inference, on *C. vulgaris* var. *chlorostachya* Reichenb.)
Carex Goodenoughii var. *turfosa* Asch. Fl. Brand. **1**: 777. 1864. (Based on *C. turfosa* Fries.)
Carex Goodenoughii var. *stolonifera* Asch. Fl. Brand. **1**: 777. 1864. (Based on *C. stolonifera* Hoppe.)
Vignantha vulgaris Schur, Enum. Pl. Transsilv. 706. 1866. (Based on *Carex vulgaris* Fries.)
Vignantha vulgaris var. *chlorocarpa* Schur, Enum. Pl. Transsilv. 706. 1866. (Based on *Carex chlorocarpa* Wimmer.)
Vignantha vulgaris var. *subfastigiata* Schur, Enum. Pl. Transsilv. 706, excl. syn. 1866. (Type from Transsylvania.)
Vignantha vulgaris var. *turfosa* Schur, Enum. Pl. Transsilv. 706. 1866. (Based on *Carex turfosa* Fries.)
Vignantha Mönchiana Schur, Enum. Pl. Transsilv. 706. 1866. (Based on *Carex Mönchiana* Wimmer.)
"*Carex limula* Fries" A. Gray, Man. ed. 5. 582. 1867. (Plant from Boston, Massachusetts.)
Carex acuta var. *angustifolia* Celak. Prodr. Fl. Böhm. 63. 1867. (Type from Bohemia.)
Carex vulgaris var. *teres* Boott, Ill. Carex 168. *pl. 559, f. 1, 2*. 1867. (Type from Sweden.)

Carex vulgaris var. *intricata* Boott, Ill. Carex 169. *pl. 561, f. 3.* 1867. (Based on *C. intricata* Tineo.)
Carex vulgaris var. *laxa* A. Blytt, Veg. Sognefj. 83. 1869. (Type from Norway.)
Carex vulgaris var. *angustifolia* A. Blytt, Veg. Sognefj. 83. 1869. (Type from Norway.)
Carex vulgaris var. "*atrata* Blytt" A. Blytt, Veg. Sognefj. 83. 1869. (Error for *C. vulgaris* var. *atra* Blytt.)
Carex vulgaris var. *conferta* A. Blytt, Veg. Sognefj. 83. 1869. (Type from Norway.)
Carex vulgaris var. *typica* Meinsh. Fl. Ingr. 409. 1878. (Based on *C. vulgaris* Fries.)
Carex vulgaris var. *subramosa* Meinsh. Fl. Ingr. 409. 1878. (Type from Russia.)
Carex vulgaris var. *sabulosa* Meinsh. Fl. Ingr. 409. 1878. (Type from Russia.)
Carex vulgaris var. *leucocarpa* Meinsh. Fl. Ingr. 410. 1878. (Type from Russia.)
Carex vulgaris var. *minuta* Meinsh. Fl. Ingr. 410. 1878. (Type from Russia.)
Carex acuta var. *turfosa* "Wimmer" Sanio, Bot. Contr. **6**: 432. 1881. (Type from Lyck, Germany.)
Carex acuta var. *turfosa* f. *picta* Sanio, Bot. Contr. **6**: 432. 1881. (Type from Lyck, Germany.)
Carex acuta var. *nigra* subvar. *vulgaris* "Fries" Sanio, Bot. Contr. **6**: 433. 1881. (Based on *C. vulgaris* Fries.)
Carex acuta var. *nigra* subvar. *vulgaris* f. *badia* Sanio, Bot. Contr. **6**: 434. 1881. (Type from Germany.)
Carex acuta var. *nigra* subvar. *vulgaris* f. *fuliginosa* "A. Br." Sanio, Bot. Contr. **6**: 434. 1881. (Based on *C. vulgaris* var. *fuliginosa* A. Br.)
Carex acuta var. *nigra* subvar. *sejuncta* Sanio, Bot. Contr. **6**: 434. 1881. (Type from Burgundy.)
Carex acuta var. *nigra* subvar. *sejuncta* f. *grata* Sanio, Bot. Contr. **6**: 435. 1881. (Type from Germany.)
Carex acuta var. *nigra* subvar. *sejuncta* f. *melaena* "Wimmer" Sanio, Bot. Contr. **6**: 435. 1881. (Based on *C. melaena* Wimmer.)
Carex acuta var. *nigra* subvar. *subenervis* Sanio, Bot. Contr. **6**: 436. 1881. (Type from Lyck, Germany.)
Carex acuta var. *nigra* subvar. *juncella* "Fries" Sanio, Bot. Contr. **6**: 436. 1881. (Based on *C. vulgaris* subsp. *juncella* Fries.)
Carex acuta var. *nigra* subvar. *chlorocarpa* "Wimmer" Sanio, Bot. Contr. **6**: 436. 1881. (Based on *C. chlorocarpa* Wimmer.)
Carex acuta var. *nigra* subvar. *tornata* "Fries" Sanio, Bot. Contr. **6**: 436, 1881. (Based on *C. vulgaris* var. *tornata* Fries.)
Carex acuta var. *oxylepis* Sanio, Bot. Contr. **6**: 437. 1881. (Type from Lyck, Germany.)
Carex acuta var. *oxylepis* subvar. *diluta* Sanio, Bot. Contr. **6**: 437. 1881. (Type from Lyck, Germany.)
Carex acuta var. *oxylepis* subvar. *melanolepis* Sanio, Bot. Contr. **6**: 437. 1881. (Type from Lyck, Germany.)
Carex acuta var. *oxylepis* subvar. *stygia* Sanio, Bot. Contr. **6**: 437. 1881. (Type from Lyck, Germany.)
Carex acuta var. *macrocarpa* Celak. Prodr. Fl. Böhm. 754. 1881. (Type from Bohemia.)
Carex acuta f. *pseudosparganioides* Celak. Prodr. Fl. Böhm. 754. 1881. (Type from Bohemia.)
Carex vulgaris var. *tenuis* Hartm.; Lange, Haandb, Danske Fl. ed. 4. 132. 1886. (Type from Denmark.)
Carex vulgaris var. *strictiformis* L. H. Bailey, Mem. Torrey Club **1**: 74. 1889. (Type from Quebec.)
Carex rigida var. *Goodenovii* L. H. Bailey, Jour. Bot. **28**: 172. 1890. (Based on *C. Goodenovii* Gay.)
Carex rigida var. *strictiformis* L. H. Bailey, Jour. Bot. **28**: 172. 1890. (Based on *C. vulgaris* var. *strictiformis* L. H. Bailey.)
Carex rigida var. *juncea* L. H. Bailey, Jour. Bot. **28**: 172. 1890. (Based on *C. vulgaris* var. *juncea* Fries.)
Carex rigida var. *teres* L. H. Bailey, Jour. Bot. **28**: 173. 1890. (Based on *C. vulgaris* var. *teres* Boott.)
Carex rigida var. *turfosa* L. H. Bailey, Jour. Bot. **28**: 173. 1890. (Based on *C. turfosa* Fries.)
Carex nigra G. Beck, Fl. Nieder. Oesterr. 136. 1890. (Based on *C. acuta* var. *nigra* L. as was *C. nigra* Reichard, 1778.)
Carex nigra subsp. *typica* G. Beck, Fl. Nieder-Oesterr. 136. 1890. (The type subspecies.)
Carex nigra subsp. *typica* var. *basigyna* G. Beck, Fl. Nieder-Oesterr. 136. 1890. (Based on *C. vulgaris* f. *basigyna* Reichenb.)
Carex nigra subsp. *typica* var. *basigyna* f. *ramifera* G. Beck, Fl. Nieder-Oesterr. 136. 1890. (Type from Austria.)
Carex nigra subsp. *typica* var. *alpicola* G. Beck, Fl. Nieder-Oesterr. 136. 1890. (Type from Austria.)
Carex nigra subsp. *turfosa* G. Beck, Fl. Nieder-Oesterr. 136. 1890. (Based on *C. turfosa* Fries.)
Carex vulgaris var. *densicarpa* Kneucker; L. Klein, in Seubert, Exc.-fl. Baden. ed. 5. 62. 1891. (Type from Baden, Germany.)
Carex vulgaris var. *salinoides* Kükenth. Mitth. Thür. Bot. Ver. II. **5**: 17. 1893. (Type from Oslo, Norway.)
Carex Goodenovii f. *microlepis* Norman, Förh. Vid.-Selsk. Christ. **27**[16]: 49. 1893. (Type from Norway.)
Carex vulgaris var. *silvatica* Russow; E. Lehm. Arch. Nat. Dorpat **11**: 162. 1895. (Type from central Europe.)
Carex vulgaris var. *androgyna* Russow; E. Lehm. Arch. Nat. Dorpat **11**: 162. 1895. (Type from central Europe.)
Carex vulgaris var. *aquatiliformis* Kükenth. Oesterr. Bot. Zeits. **46**: 163. 1896. (Type from Norway.)
Carex vulgaris var. *pumila* Kükenth. Allg. Bot. Zeits. **4**: 2. 1898 (Type from central Europe.)
Carex vulgaris var. *elatior* subvar. *latifolia*. Kükenth. Allg. Bot. Zeits. **4**: 3. 1898. (Type from central Europe.)

Carex vulgaris var. *elatior* subvar. *angustifolia* Kükenth. Allg. Bot. Zeits. 4: 3. 1898. (Type from central Europe.)
Carex vulgaris var. *elatior* subvar. *juncella* "Fries" Kükenth. Allg. Bot. Zeits. 4: 3. 1898. (Based on *C. vulgaris* subsp. *juncella* Fries.)
Carex vulgaris f. *Roussiaei* H. Lév.; Lév. & Vaniot, Bull. Acad. Géogr. Bot. 10: 37. 1901. (Type from Mayenne, France.)
Carex flacca × *Goodenoughii* Ostenf. in Warming, Bot. Faeröes 82. 1901. (Type from the Faeröe Islands.)
Carex vulgaris var. *elatior* subvar. *angustifolia* f. *subovalis* Kneucker, Allg. Bot. Zeits. 7: 56. 1901. (Type from Baden, Germany.)
Carex vulgaris var. *communis* Meinsh. Acta Hort. Petrop. 18: 334. 1901. (Based on *C. vulgaris* Fries.)
Carex vulgaris var. *leucolepis* Meinsh. Acta Hort. Petrop. 18: 334. 1901. (Type from Russia.)
Carex Goodenoughii var. *elatior* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 95. 1902. (Based on *C. caespitosa* var. *elatior* O. F. Lang.)
Carex Goodenoughii var. *elatior* subvar. *tornata* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 95. 1902. (Based on *C. vulgaris* var. *tornata* Fries.)
Carex Goodenoughii var. *elatior* subvar. *recta* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 95. 1902. (Based on *C. caespitosa* var. *recta* Fleischer.)
Carex Goodenoughii var. *elatior* subvar. *recta* f. *silvatica* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 95. 1902. (Based on *C. vulgaris* var. *silvatica* Russow.)
Carex Goodenoughii var. *curvata* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 96. 1902. (Based on *C. caespitosa* var. *curvata* Fleischer.)
Carex Goodenoughii var. *curvata* subvar. *basigyna* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 96. 1902. (Based on *C. vulgaris* f. *basigyna* Reichenb.)
Carex Goodenoughii var. *curvata* subvar. *basigyna* f. *subramosa* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 96. 1902. (Based on *C. vulgaris* var. *subramosa* Meinsh.)
Carex Goodenoughii var. *curvata* subvar. *basigyna* f. *chlorostachya* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 96. 1902. (Based on *C. vulgaris* var. *chlorostachya* Reichenb.)
Carex Goodenoughii var. *curvata* subvar. *basigyna* f. *melaena* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 96. 1902. (Based on *C. melaena* Wimmer.)
Carex Goodenoughii var. *curvata* subvar. *polygama* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 96. 1902. (Based on *C. caespitosa* var. *polygama* Peterm.)
Carex Goodenoughii memor. *Gibsoni* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 97. 1902. (Based on *C. Gibsonii* Bab.)
Carex Goodenoughii var. *juncea* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 97. 1902. (Based on *C. vulgaris* var. *juncea* Fries.)
Carex Goodenoughii var. *pumila* Asch. & Graebn. Syn. Mitteleur. Fl. 2^2: 98. 1902. (Based on *C. vulgaris* var. *pumila* Kükenth.)
Carex Goodenoughii var. *subrigida* Kükenth.; Brockm.-Jer. Fl. Puschlav 91. 1907. (Type from Switzerland.)
Carex Goodenoughii f. *pumila* Kükenth. in Engler, Pflanzenreich 4^{20}: 314. 1909. (Based on *C. vulgaris* var. *pumila* Kükenth.)
Carex Goodenoughii f. *polyandra* Kükenth. in Engler, Pflanzenreich 4^{20}: 314. 1909. (Based on *C. polyandra* Schkuhr.)
Carex Goodenoughii f. *androgyna* Kükenth. in Engler, Pflanzenreich 4^{20}: 314. 1909. (Based on *C. vulgaris* var. *androgyna* Russow.)
Carex Goodenoughii f. *basigyna* Kükenth. in Engler, Pflanzenreich 4^{20}: 314. 1909. (Based on *C. vulgaris* f. *basigyna* Reichenb.)
Carex Goodenoughii f. *subramosa* Kükenth. in Engler, Pflanzenreich 4^{20}: 314. 1909. (Based on *C. vulgaris* var. *subramosa* Meinsh.)
Carex Goodenoughii f. *subfastigiata* Kükenth. in Engler, Pflanzenreich 4^{20}: 314. 1909. (Based on *Vignantha vulgaris* var. *subfastigiata* Schur.)
Carex Goodenoughii f. *subsetacea* Kükenth. in Engler, Pflanzenreich 4^{20}: 314. 1909. (Type from Silesia.)
Carex Goodenoughii f. *badia* "Sanio" Kükenth. in Engler, Pflanzenreich 4^{20}: 314. 1909. (Based on *C. acuta* var. *nigra* subvar. *vulgaris* f. *badia* Sanio.)
Carex Goodenoughii f. *fuliginosa* Kükenth. in Engler, Pflanzenreich 4^{20}: 315. 1909. (Based on *C. caespitosa* var. *fuliginosa* Döll.)
Carex Goodenoughii f. *Roussioei* "H. Lév" Kükenth. in Engler, Pflanzenreich 4^{20}: 315. 1909. (Based on *C. vulgaris* f. *Roussiaei* H. Lév.)
Carex Goodenoughii f. *chlorostachya* "Reichenb." Kükenth. in Engler, Pflanzenreich 4^{20}: 315. 1909. (Based on *C. vulgaris* var. *chlorostachya* Reichenb.)
Carex Goodenoughii f. *leucolepis* "Meinsh." Kükenth. in Engler, Pflanzenreich 4^{20}: 315. 1909. (Based on *C. vulgaris* var. *leucolepis* Meinsh.)
Carex Goodenoughii f. *oxylepis* Kükenth. in Engler, Pflanzenreich 4^{20}: 315. 1909. (Based on *C. acuta* var. *oxylepis* Sanio.)
Carex Goodenoughii f. *zonata* "Nylander" Kükenth. in Engler, Pflanzenreich 4^{20}: 315. 1909. (Based on *C. vulgaris* var. *zonata* F. Nyl.)
Carex Goodenoughii memor. *polygama* "Peterm." Kükenth. in Engler, Pflanzenreich 4^{20}: 315. 1909. (Based on *Vignea caespitosa* var. *polygama* Peterm.)
Carex Goodenoughii var. *tornata* "Fries" Kükenth. in Engler, Pflanzenreich 4^{20}: 316. 1909. (Based on *C. vulgaris* var. *tornata* Fries.) A combination previously made.
Carex Goodenoughii var. *tornata* f. *pleiandra* Kükenth. in Engler, Pflanzenreich 4^{20}: 316. 1909. (Type from Thuringia.)
Carex Goodenoughii var. *tornata* f. *densicarpa* "Kneucker" Kükenth. in Engler, Pflanzenreich 4^{20}: 316. 1909. (Based on *C. vulgaris* var. *densicarpa* Kneucker.)

Carex Goodenoughii var. *subcaespitosa* Kükenth. in Engler, Pflanzenreich 4[20]: 316. 1909. (Type from Ireland.)
Carex Goodenoughii var. *strictiformis* "L. H. Bailey" Kükenth. in Engler, Pflanzenreich 4[20]: 316. 1909. (Based on *C. vulgaris* var. *strictiformis* L. H. Bailey.)
Carex Goodenoughii var. *recta* "Fleischer" Kükenth. in Engler, Pflanzenreich 4[20]: 316. 1909. (Based on *C. caespitosa* var. *recta* Fleischer.)
Carex Goodenoughii var. *recta* f. *grata* "Sanio" Kükenth. in Engler, Pflanzenreich 4[20]: 316. 1909. (Based on *Carex acuta* var. *nigra* subvar. *sejuncta* f. *grata* Sanio.)
Carex Goodenoughii var. *recta* f. *silvatica* "Russow" Kükenth. in Engler, Pflanzenreich 4[20]: 316. 1909. (Based on *C. vulgaris* var. *silvatica* Russow.)
Carex Goodenoughii var. *recta* f. *subovalis* Kneucker; Kükenth. in Engler, Pflanzenreich 4[20]: 317. 1909. (Based on *C. vulgaris* var. *elatior* subvar. *angustifolia* f. *subovalis* Kneucker.)
Carex Goodenoughii var. *recta* f. *aquatiliformis* Kükenth. in Engler, Pflanzenreich 4[20]: 317. 1909. (Based on *C. vulgaris* var. *aquatiliformis* Kükenth.)
Carex Goodenoughii var. *salinoides* Kükenth. in Engler, Pflanzenreich 4[20]: 317. 1909. (Based on *C. vulgaris* var. *salinoides* Kükenth.)
Carex Goodenoughii var. *stenocarpa* Kükenth. in Engler, Pflanzenreich 4[20]: 317. 1909. (Type from Scotland.)

Loosely to densely cespitose, the clumps large to small, sending forth long, horizontal, slender but tough, brownish, scaly stolons, the culms erect or somewhat curved, stiff to slender, sharply triangular, papillate, smooth to strongly roughened above, usually strongly exceeding the leaves, but occasionally shorter, brownish-tinged and often fibrillose at base, strongly phyllopodic, the dried-up leaves of the previous year very conspicuous; sterile shoots phyllopodic; leaves of the flowering year with well-developed blades usually 5–8 to a fertile culm, the lower clustered near the base, the blades erect, ascending, spreading, or even recurved, flat or channeled towards base with involute margins, narrow, 5–30 cm. long, usually 1.5–2.5 mm. wide, light-green, thin but firm, sometimes stiff, papillate, roughened towards the apex, usually long-tapering but often short-tapering, the sheaths rounded and smooth dorsally, white-hyaline and often yellowish-brown-tinged, the ligule wider than long; terminal spikes staminate, often with 1 or 2 smaller ones at base, from short-peduncled to long-peduncled, linear, 1.5–4 cm. long, 2–4 mm. wide, the scales oblong-obovate, very obtuse to acutish, brownish or blackish, with lighter midrib and inconspicuous hyaline margins; pistillate spikes 2–4, often staminate above, erect, all sessile, or the lower short-peduncled, contiguous or more or less separate, oblong to linear-oblong, 1–4.5 cm. long, 5 mm. wide, densely flowered except occasionally towards base, containing 20–100 appressed-ascending perigynia in several to many rows; lowest bract leaflet-like, mostly shorter than but frequently more or less strongly exceeding the culm, sheathless, but biauriculate, the upper reduced, strongly dark-auricled; scales ovate or oblong-ovate, obtuse (at least middle and upper), narrower and shorter than the perigynia, black or dark-colored with lighter midrib and inconspicuous hyaline margins; perigynia plano-convex, not turgid, strongly flattened, obovate, ovate, oval, or suborbicular, 2.5–3 mm. long, 2–2.5 mm. wide, green or often darkened at apex, membranaceous, puncticulate, 2-ribbed (the marginal), and lightly several-nerved on both sides, short-stipitate to long-stipitate, rounded at base and apex, minutely apiculate-beaked, the beak 0.1–0.3 mm. long, entire or very nearly so, ciliolate at tip; achenes lenticular, suborbicular, 1.5 mm. long, nearly as wide, broadly substipitate, rather loosely enveloped in lower half of perigynium-body, short-apiculate, obscurely jointed with the straight slender style somewhat enlarged at base; stigmas 2, slender.

TYPE LOCALITY: "Habitat in Europa ubique in siccioribus."

DISTRIBUTION: Wet meadows near the coast, Greenland to Rhode Island; erroneously recorded from Pennsylvania and various parts of western North America; widely distributed in western Europe; doubtfully recorded from northern Asia; reported from South America, but this is undoubtedly some allied species. (Specimens examined from Greenland, Labrador, Newfoundland, St. Pierre, Miquelon, Quebec, including Cape Breton, Nova Scotia, Prince Edward Island, New Brunswick, Maine, New Hampshire, Massachusetts, Rhode Island.

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 724;* ed. 2. *f. 1052;* Schkuhr, Riedgr. *pl. Aa, Bb, f. 85;* Boott, Ill. Carex 166. *pl. 557–560; pl. 561, f. 1–4; pl. 565;* Fl. Dan. *pl. 2478;* Jour. Russe Bot. **1911**: 84. *f. 66;* Sturm, Deuts. Fl. **50**: *pl. 13;* **69**: *pl. 6;* Reichenb. Ic. Fl Germ. **8**: *pl. 226, f. 579; pl. 227, f. 580; pl. 228, f. 581;* Ostenf. Fl. Arct. 73. *f. 44;* Trans. Linn. Soc. **2**: *pl. 21, f. 8* (as *C. caespitosa*); Anderss. Cyp. Scand. *pl. 5, f. 52;* Engl. Bot. *pl. 1507;* ed. 2. *pl. 1643;* Benth. Handb. Brit. Fl. ed. 2. *f. 1111;* Coste, Fl. Fr. *pl. 3849; pl. 3848* (as *C. turfosa*); Hegi, Ill. Fl. Mittel.-Eur. *pl. 47, f. 5;* Host, Gram. Austr. **1**: *pl. 91* (as *C. caespitosa*); Hallier, Deuts. Fl. *pl. 430* (as *C. caespitosa*); Karst. Deuts. Fl. 341. *f. 170* (5); Sv. Bot. *pl. 408, f. B* (as *C. acuta* var.); Jard. Ann. Nat. Hist. **11**: 168. *pl. 5.*

NOTE: As to applicability of the name *Carex acuta* L. to the present species, see Wulfen, Fl. Norica Phan. 747. 1858; Mackenzie, Bull. Torrey Club **50**: 343. 1923.

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